

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE PROBLEM OF PSYCHOLOGY.

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FROM time to time, in the development of a science, it becomes necessary to investigate its relations to other sciences, and, by determining its limits in various directions, and weeding out the side-issues, to arrive at a definition that accurately states the problem to be solved by it.

The following notes have as purpose the establishment of a clear distinction between Psychology and the other sciences, and thus the attainment of an idea of what the real problem of psychology is.

One after another the sciences have arisen, each taking its own group of phenomena. The objects of experience were not first classified and then distributed in portions to the various sciences, but each has chosen for itself; and, as a result, every object of the universe is treated, not by one, but by many sciences. Each science brings its own purposes, its own methods, to the consideration of every object. It is absolutely impossible to classify the existing sciences as to *what* they treat of, because, to a great extent, they all treat of the same objects. We can separate them only by their various ways of going to work, *i.e.*, according to *how* they treat things.

On this principle, the first division will be into—sciences

that treat phenomena from special standpoints; those that treat them from a general point of view; and those that treat them from both. The Special Sciences occupy special points of view; the General or Philosophical Sciences occupy a general one; and the Didactic Sciences agree with the general sciences when seeking the purposes and ends to be striven for, but with the special sciences when determining the means to reach those ends.

The *Special Sciences* can be classified on various principles. Perhaps the best is the following :—

I. The Mathematical Sciences, treating the *forms* of all experience.

II. The Phenomenal Sciences, treating the *contents* of experience.

The *Phenomenal Sciences* are to be divided into—

(1) The Physical Sciences, which treat experience from its objective side, or as objects independent of the observer ;

(2) The Mental Sciences, which treat experience from its subjective side, or as phenomena of the subject.¹

Into the question of the relation of these two sides or parts of experience we do not need to go ; all that is necessary is the fact that the division is recognised by the sciences themselves, *i.e.*, that we actually have a class of physical sciences, and a class of mental sciences.

The group of Mental Sciences is best divided, according to Wundt's scheme, into the sciences of mental processes, the sciences of mental products, and the sciences of mental development. The first class can be called the psychological sciences; the second includes philology, statesmanship, systematic law, systematic theology, &c. ; the third includes all varieties of history.

A few words must be said in regard to the position of Philosophy in the classification of the sciences. It has been asserted that philosophy is the general science that includes all others, and that a classification of the other sciences gives the divisions of philosophy. This may or may not be true, but there remains the fact that the science of philosophy itself is left out of the classification. Giving the divisions of a science does not classify it. Suppose we wish to make a classification of treatises on physics. If we divide them into treatises on mechanics, treatises on acoustics, treatises on optics, on heat, on electricity, &c., and then remark that

¹ See Wundt, "Ueber die Eintheilung der Wissenschaften," *Philos. Stud.* v. 1.

these are the divisions of physics, we omit the treatises on physics in general ; we have confused a division of the subject with a classification of the treatises on that subject. Likewise, a classification of the sciences must not be confused with a division of philosophy. Even if all other sciences were only parts of philosophy, still there must be one class of sciences for the general science of philosophy.¹ If no place is given to the philosophical sciences, to metaphysics, and the doctrine of knowledge, this can mean only one of two things : either that philosophy as a science does not exist, or that the classification is not correct. If there exists a science of philosophy, it must have some place in the classification.

According to our division, the general scheme of the sciences will be in outline as follows :—

- A. Special Sciences.
 - I. Formal Sciences.
 - II. Phenomenal Sciences.
 - (1) Physical Sciences.
 - (2) Mental Sciences.
 - (a) Psychological Sciences.
 - (b) Philosophical Sciences.
 - (c) Historical Sciences.
- B. Philosophical Sciences.
- C. Didactic Sciences.

This characterisation of the chief classes of the sciences is necessarily very brief ; but what is especially important for the present purpose can best be extended in considering the relation between Psychology and the Physical Sciences, then Psychology and the other Mental Sciences, then Psychology and Philosophy, and, finally, Psychology and Pedagogy.

I.

The first relation to be considered is that between Psychology and the Physical Sciences. The physical sciences are those that treat of objective phenomena, or the phenomena of nature. Psychology as a science of mental phenomena has a twofold relation to the physical sciences : in the first place, it is complementary to them, a necessary auxiliary ;

¹ It seems curious to find no place in Spencer's Classification of the Sciences for such an extensive scientific work as the "Synthetic Philosophy".

secondly, they are complementary to it, accessories in psychological investigation.

It is often the boast of the investigator of nature that he needs no help from psychology, that his science is independent of mental sources of error. It happens, however, that he himself is gifted with a mind, and that he cannot know material phenomena except as connected with mental phenomena. This neglect of the mental part in his investigations is often the source of great failings. The history of the theory of colours shows what an advance was made as soon as the subjective character of colours was recognised. Astronomers once thought that they could record the exact moment of the passage of a star across a line of the telescope; the disagreement of the results of various observers pointed to the fact that there was a subjective element in the registered time. To-day every astronomer who intends to record transits by the graphic method has to determine previously his reaction-time, or, as it is somewhat improperly called, his "personal equation". Moreover, the latest investigations point to hitherto disregarded sources of error in observing and recording. Astronomy is not the only science that is obliged to get psychological data for its own practical purposes. In general, it is to be said that every investigator must from the very outset know something of the science of mental life, merely to keep him from accounting to nature much that belongs to his own self.

There remains one of the physical sciences to which psychology stands in close relation. It is not the place here to speak of the great debt which psychology owes to Physiology, although this is partly the cause of numerous misconceptions in regard to their relation. We have to do with a sharp distinction between them and the unjustified subordination of psychology to physiology.

Perhaps mental phenomena can be present only when certain changes occur in the nervous system, but that is no explanation of them. The function of matter is motion; but is it a sufficient explanation of a phenomenon of mind to give the accompanying physical motion? An idea is not explained if we know that at the time of its occurrence a certain change occurred in a certain part of the brain. Suppose I have a feeling of pain. It may be that before, at the time, or afterwards, some change has occurred in my brain; it may be that such a feeling is always accompanied by a definite nervous change; but is there any intelligible meaning to the statement that the feeling *is* the nervous change? It is the same with all states of mind: under the

closest investigation they always remain states of mind; I can never resolve them into motions of particles of matter. The two sets of phenomena may be inseparably connected and parallel—that is still a problem to be solved—but it is evident that mental phenomena exist as mental phenomena; and, therefore, there can be a science of mental phenomena as distinguished from the science of bodily phenomena. Approaching the question from the other side, we must arrive at the same result. It may be that at some future time an anatomist can so accurately examine the brain with a microscope that he will be able to say with surety, 'This person had such and such sensations, such and such memories,' &c., but he can attach meaning to these statements only by calling up the phenomena to which they correspond in his own mind. A deaf investigator can never imagine what sensations of sound are, even if he could see and record all physical and physiological phenomena that accompany them. He who had such a perfect knowledge of the finest and most complicated movements in the brain that at each moment he could tell the position of every molecule would, in spite of this, not find there pleasure or pain, memories and volitions.¹

Functions of the brain may correspond to or may hold some other relation to mind; yet mind and brain are not the same; the study of the brain is not the study of the mind; physiology of the nervous centres is not psychology.

Even when the absolute subjection of psychology to physiology is not maintained, yet it is a widely-spread opinion that the only science of mental phenomena which can be of value must be the science of their relations to the accompanying nervous changes. This science, which is in general called physiological psychology, the science of the relations between mental phenomena and nervous phenomena, is a most valuable and practical aid to psychiatry and psychology, but it is not these sciences themselves. The science of the changes of molecules which corresponds to ideas is no more the science of ideas than the science of printed words is philology.

The importance of settling distinctly the relation between these two closely-connected sciences cannot be overrated. On the foundation of a confusion of the two there is rising in many parts of Germany a new philosophy which cannot be designated otherwise than as Materialism. What has the rise of a new philosophy to do with psychology? That's

¹ Cp. Lipps's *Grundtatsachen des Seelenlebens*, p. 5.

just the point: it ought to have nothing to do with it; but, just as idealistic philosophy was in many quarters formerly the basis of psychology, in like manner Revised Materialism is made the basis of many psychological investigations. Against Materialism, Revised Materialism, Idealism, Realism, Transfigured Realism, Positivism, Actualism, &c., &c., as *philosophies*, there is nothing to be said; but as psychologies they are out of place. What is wanted is such a method of investigating mental processes that a dozen investigators, each with a different philosophy, can work side by side and bring out results completely uninfluenced by their theories. Who would ask an investigator of the velocity of light what he thought about the nature of space? The question of the nature of our idea of space belongs to philosophy, not to physics; certain concepts are accepted as the basis of physics, and every investigator uses them, no matter what his philosophy concerning them is. Is there no such possibility for psychology? Must a new psychology arise with every new philosophy?

There is one fundamental axiom on which psychology can work, and without which it becomes involved in the mazes of theory. This axiom can be so formulated: *Mental phenomena cannot influence or be influenced by material phenomena.* This principle was recognised by Giordano Bruno and Spinoza, taken as the starting-point of philosophy by Leibniz, and set up as the foundation of psychology by Wolff. Finally, the discovery, the development and the proof of the law of the conservation of energy by Mayer, Helmholtz, and Joule have rendered the opposite of the axiom inconceivable.

The difference between physiological psychology on a materialistic philosophical basis, and physiological psychology on the basis of physiology and psychology, can easily be made clear. The materialistic theory accepts nominally the law of the conservation of energy for the nervous system. Stimuli act upon the sense-organs and produce molecular changes in the nervous system; these changes progress to the brain, in which they follow more or less complicated paths till sooner or later they pass along the efferent nerves and set muscles or glands in action; nowhere can there be any break in the series of mechanical phenomena. So far this is simply physiology. The theory, however, adds something more: it asserts that certain of these nervous phenomena produce states of consciousness or mental phenomena and others do not. If the nervous phenomena be represented by large letters and mental phe-

nomena by small ones, then the process is supposed to be as follows :—

$$\begin{array}{ccccccc} & b & c & & f & & \\ & | & | & & | & & \\ A-B & -C- & D-E & -F, & \&c. \end{array}$$

That is to say, the nervous phenomenon or molecular change, A, produces a change, B, which, according to the not-to-be-broken law above mentioned, must represent exactly the same amount of energy; this phenomenon, B, passes into other nervous phenomena, C, D, &c., but the sum of energy contained in the nervous system must exactly represent the energy transmitted to it from the rest of the material world, it must return mechanically exactly as much work as is expended on it. According to the theory under discussion, certain of these nervous changes produce mental phenomena; since each change produces an equivalent nervous change, therefore such a nervous change must produce an equivalent nervous change + a mental phenomenon. That is, the result is greater than the cause.

Psychological problems, when handled from this standpoint, receive a peculiar interpretation. It is entirely a secondary matter what comes into consciousness. For example, a succession of ideas, *a*, *b*, *c*, which appears to us unbroken, would be interpreted somewhat as follows :—first comes idea *a*, then follows idea *b*, then come nervous phenomena, C, D, E, F, G, &c., then idea *c*, &c. In this way we skip back and forth from mental to material phenomena, from mind to nerve; by doing so we violate our axiom and disregard a fundamental physical law.

The other physiological psychology starts not from a materialistic philosophy but from physiology and psychology. With physiology it accepts and investigates nervous phenomena as an unbroken series, which can never be influenced by any but mechanical forces; with psychology it investigates mental phenomena for themselves; then it seeks to determine what relations exist between the two sets. Psychologically, it determines the succession of states of consciousness *a-b-c-d- &c.*; physiologically, it determines the succession of nervous phenomena *A-B-C-D- &c.* Then it investigates which of the mental states correspond to which of the nervous changes, and how they correspond. For example, so :—

$$\begin{array}{ccccccc} a & -b- & c- & d- & e \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ A & -B- & C- & D- & E. \end{array}$$

The fundamental axiom of psychology is observed; the mental series goes on by itself, and the material series likewise. The law of conservation of energy is not broken; all along the nervous series the energy remains the same.

This would have been clear from the start to everyone if it had not been for the fact that the two series as known to us are incomplete. The paths of nervous changes can be traced from the sense-organs into the brain, many efferent nerves can be traced from the brain to the muscles and glands, but of the innumerable successions and complications of phenomena between these we know extremely little. The series seems to be suddenly interrupted:—

A-B- -J-K-L.

The central parts lie beyond our knowledge. Likewise in psychology we can determine only a part of the succession of mental phenomena; *a* suddenly appears in consciousness, then *b*, then *c*, then *i*, then *k*, &c. It is an error for psychologists to suppose that the succession of states of consciousness is the whole of mental life, and that one state always brings another directly after it. It can be proved that an idea *i* follows after an idea *c*, with which it has no direct connexion;¹ parts of the succession of mental phenomena are not present in consciousness. This series also is to be represented as not continuous:—

a-b-c-d- -i- . -k.

What is to be done? If we are to proceed without a violation of the psychological axiom, we have three things to see to: (1) The investigation of the missing members of the nervous series (physiology); (2) The investigation of the missing members of the mental series (psychology); (3) The investigation of the relations between both series (physiological psychology). The results can be put together, and where members of one series are wanting they can be supplied from the other series, *but only with the recognition that these are temporary substitutes.*

Suppose we have the above-series with certain parts lacking, and that we have determined that each known mental phenomenon runs parallel to a nervous phenomenon: that *a* corresponds to A, *b* to B, *k* to K. Then we can say that the

¹ An experimental investigation of this phenomenon (first mentioned by Hartley and Hamilton) is to be found in a memoir by myself: "Ueber den associativen Verlauf der Vorstellungen" (*Phil. Studien*, vi. 2).

same reason why A corresponds to *a*, and B to *b*, will justify us in saying that with the greatest probability a certain nervous phenomenon, C, must correspond to *c*, likewise I to *i*, and *j* to J. Then the series will have some of their vacant spaces filled:—

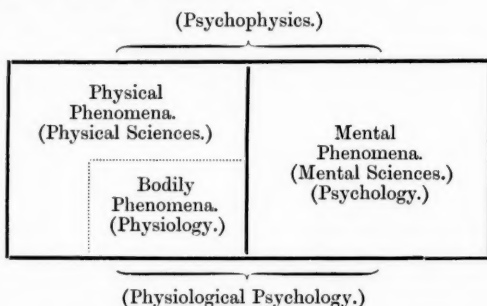
$$\begin{array}{ccccccc} a & - & b & - & c & - & d & & - & i & - & (j) & - & k \\ A & - & B & - & (C) & - & (D) & & - & (I) & - & (J) & - & K & - & L. \end{array}$$

In this way we can always hope to get nearer the truth. Fortunately just where the nervous series is out of our reach we have the corresponding mental series, and so we can attain some degree of completion. On this principle we are justified in talking about a nervous stimulation becoming a percept, a muscular contraction following an act of will, as long as we remember that these are only substitutes for unknown quantities. Thus we can say that the rays of light from an object passed to the retina and by means of chemical changes caused a stimulation of the optic nerve, that this was followed by a percept of the object, this by a feeling which in turn gave rise to an act of will; that this was followed by an impulse along the nerves of the arm which caused the muscles to contract in such a manner that the hand grasped the object and produced a change of the picture on the retina, which produced a new percept, &c. Here we have, to be sure, sprung over from nervous phenomena to mental phenomena and back again; but what we meant was really this: that the changes of the optic nerve caused a long series of nervous phenomena in the brain lying beyond our investigation, which finally resulted in an impulse along the nerves of the arm, and that, from causes unknown to us, a visual percept, then an emotion, then a volition, arose in the mind, then a different visual percept, &c., and that, since mind and nerve correspond in so many respects, we felt ourselves justified in substituting the known mental series for the unknown changes in the brain and the known impulses in the nerve and the contraction of the muscles instead of the unknown phenomena between the volition and the new percept.

It is not to be understood that, by this limitation of the problem of psychology, any opinion whatever is expressed on the relation between mental phenomena and bodily phenomena. Let the relation be what it will, the question must be kept out of psychology. As a means of doing this, we have called attention to the psychological axiom. The relation between psychology, physiological psychology, and physiology is at once clear. Physiology investigates the

nervous changes ; Psychology, the mental changes ; Physiological Psychology, the relations between the two. It is also to be seen at a glance that physiology stands in need of the other two, that the psychologist cannot finish his work without the others, and that the progress of physiological psychology depends on the progress of both the others. To be sure, we have narrowed the domain of psychology and given a large part of what is often claimed for it to physiological psychology, but it sometimes pays to be modest. According to this view, Psychology in the stricter meaning is a science of mental phenomena, and not of the relations between mental and nervous phenomena.

The following diagram will perhaps help to make the relations of these sciences clearer :—



The Mental Sciences are the sciences of mental phenomena ; Psychophysics is the science of the relations between mental phenomena and physical phenomena ;¹ Physiological Psychology is that part of psychophysics which treats of the relations between mental phenomena and bodily phenomena.²

¹ "Under Psychophysics is here to be understood an exact science [Lehre] of the functional relations [*function* used in the mathematical sense] or the relations of dependence between body and soul ; in general, between the bodily and the mental, the physical and the psychical world." (Fechner, *Elemente der Psychophysik*, 2nd ed., i. 8.)

² This is different from Wundt's view of physiological psychology. According to him, it includes not only what is here understood by the name, but also all psychology in which the experimental method is applied. This would embrace more than the name itself properly allows. The determination of the duration of the higher mental processes, the investigation of the laws of association, &c., are subjects of experiment, while no account need be taken of the accompanying physiological processes. It is true that a very large part of experimental psychology

II.

Having seen the injustice of putting Psychology among the physical sciences, it now remains for us to determine what part it plays among the Mental Sciences. Mental phenomena are of two kinds; mental processes and mental products, *e.g.*, the processes, seeing and thinking, are distinct from the products, the visual sensations and the thoughts.

Now arises the question: What relations do the mental sciences bear to these products and to the activities of the mind which produced them? One after another they have come forward and appropriated what they wanted. Language, literature, and all other products of mental life embodied in language, have been claimed by philology.¹ Pictures, statues, edifices, have fallen to the respective sciences of art. The political productions are claimed by political economy, and the social productions by sociology. The religions form the subject of the science of religion. In like manner, there have arisen many other sciences of mental products. There is also a large class of sciences that treat of the development of mental phenomena, namely, the historical sciences.

But is there no science for the mental processes which have brought forth all this? There are sciences of human thoughts, sciences of human acts, sciences of imaginations; there must surely be a science of thought, of imagination, of volition. Before inquiring if such a science exists, it will be necessary to establish certain tests by which we can distinguish the true one from the impostors. It must be (1) a science of *mental processes*, (2) a *science*, in the modern sense of the word.

The science we are seeking must have for its material the mental processes,—not mind, not the relations of mind and matter, not even mental products, but only mental processes. The science of mind and the science of psychophysical relations are considered elsewhere; here we wish to distinguish a science of mental processes

owes its origin to investigations begun by physiologists, but it is also true that as large a part received its first impulse from astronomy. If the science is to be named according to its origin, it can be called astronomical psychology, as well as physiological psychology. It is with diffidence that I venture to disagree with one to whom psychology owes so much, yet some of the confusion which I am trying to put in order is due to this too broad application of a name.

¹ By philology is understood philology in its widest sense, not merely linguistics.

from sciences of mental products, and to give the reasons for the assertion that the former is an indispensable foundation for the latter. By mental processes are meant the operations to which ideas are subjected. Ideas pass through various degrees of consciousness from a minimum to a maximum; this process is called perception. Ideas of various kinds unite into one idea; this is associative union. One idea brings another after it; this is associative succession. It is the duty of our science to investigate the various processes which ideas undergo, and its interest in the ideas themselves is only secondary. Its subjects are sensation, perception, volition, imagination, &c., rather than sensations, percepts, volitions, imaginations. Our idea of a star is a quite complicated mental phenomenon; a science of mental processes should seek out the elements of which the idea is composed, and investigate the processes by which these elements are combined. For physics the star is a number of ether-vibrations; for physiology it is a complex of nervous changes resulting from the physical vibrations, and passing from the eye into the brain; but for our science it is a compound of mental elements called sensations. The combination of these sensations into a complex phenomenon, having extension, objectivity, and the property of being one of a certain kind of objects, is the result of the processes of perception and assimilative association. The distinctness of the star occasioned by noticing it especially is the result of the process of attention; the application of the name 'star' to it is the result of memory and association. Our science interests itself in these processes, not in their results. Of the thousands of ideas that pass through a man's mind in a day it takes no account except for the purpose of investigating the underlying processes. The phenomena that correspond to the sensations, *e.g.*, vibrations of ether or air, combinations of brain-molecules, are the subjects of the physical sciences; the results of the mental processes, *e.g.*, the words, the actions, the dispositions, are the subjects for sciences of mental products such as philology, science of law, sociology, &c.; but the processes through which the simple mental phenomena become such products form the material for our science.

The second condition which our science is to fulfil is that it must be a modern science. The subjects of science are facts and hypotheses. The distinguishing characteristics of modern science are the establishment of accurately determined facts and the founding of hypotheses upon such facts

alone. A would-be science that neglects any possible means of developing these characteristics finds itself at once in disrepute. The science of mental processes dare not begin with metaphysical hypotheses and twist the facts to suit them ; it dare not rest contented with loose and insufficient methods of ascertaining facts.

These tests oblige us to reject "philosophies of mind" which deduce everything from an arbitrary principle. Spiritualism and materialism have no place here. It may be that the results of patient investigation lead to spiritualism, materialism, parallelism, actualism, or some other theory ; to set up an *-ism* after an unprejudiced study of the facts is scientifically justifiable, but it is quite a different matter to blindly pick out some theory as a guide and to cling to it in spite of the facts.

Is there a science of mental processes ? The existence of *The Senses and the Intellect* and *The Emotions and the Will* by Bain is a sufficient answer. Here the establishment of the facts is conducted with care, and with equal care the laws, the explanations, and the hypotheses are founded upon them. This example would content us if it were not for one improvement that has been made. The results of the so-called method of self-observation (by which is really meant the method of reflexion) are not as accurate as could be desired. Various observers make different statements as soon as they attempt to determine more than the general outlines. Leibniz asserted that an infinite number of ideas can be in consciousness at the same time ; Steinthal declares that consciousness has room for only one :¹ between these decisions in regard to the facts there is room for rather a large number of varying opinions. Is there no way of reaching certainty in these matters ? It is to Herbart² that we owe the first impulse to improvement. At the basis of his mental science lies the idea of the possibility of numerical determination of mental phenomena. Yet, notwithstanding this great step, he declares that "psychology must not experiment with man ; and instruments thereto do not exist" ; in another place he asserts that "psychological quantities are not presented in such a way that they can be measured ; they allow only an incomplete estimate". Nevertheless impulses from astronomy and physiology led

¹ *Einleitung in die Psychologie und Sprachwissenschaft*, § 73, p. 134.

² *Lehrbuch zur Psychologie*, 1816 ; *Ueber die Möglichkeit und Nothwendigkeit Mathematik auf die Psychologie anzuwenden*, 1822 ; *Psychologie als Wissenschaft*, 1824-25.

Fechner¹ to invent methods not only for such numerical determination but also for exact experiment. The further development of the experimental methods is familiar to everyone. They are not intended to supplant reflexion : such a statement is meaningless. Reflexion, however, without the assistance of exact methods of determination, can be trusted only for general characterisations of mental phenomena. In cases like the one above, our duty is not to appeal to Leibniz or to Steinthal, but to institute experiments that will bring decisive results. The laboratories in Leipsic, Göttingen, Berlin, Freiburg, Bonn, Dorpat, Munich, Worcester (Mass.), Philadelphia, and the three special psychological periodicals, show that the exactest methods of modern science can be applied to the investigation of mental processes.

There still remains the question of the name. Experimental Psychology is not appropriate, because by laying too much stress on the methods it excludes all portions in which reliance must still be placed on general reflexion and statistics without experiments. Psychophysics and Physiological Psychology have other meanings, as shown above. Empirical Psychology is good, but it seems hardly necessary to add the adjective ; in a few years more no one will need to call attention to the fact that his psychology is empirical any more than that his chemistry and his botany are not "speculative". Psychology, with no adjectives, is probably the most fitting name.

Psychology, then, is the science of mental processes ;² it seeks the exact description and explanation of the operations of our inner experience.

The science of mental processes must occupy a fundamental position as the basis of the other mental sciences. History, political economy and sociology can gather facts for themselves, but as soon as an explanation is attempted recourse must be had to the fundamental principles of mental life. Philology, in the broader sense, is the science of language, as the expression of the mental life of man. Psychology must, therefore, bear to philology the relation of process to product. Steinthal recognises the intimacy of the relation by placing his *Introduction to Psychology*

¹ *Elemente der Psychophysik*, 1860 (new edition, 1889) ; *In Sachen der Psychophysik*, 1877 ; *Revision der Hauptpunkte der Psychophysik*, 1882.

² As far as I know, this definition originates with Wundt—"Lehre von den Geistesvorgängen". (See "Ueber die Eintheilung der Wissenschaften," *Philos. Studien*, v. 1.)

and the *Science of Language* as the first volume of his work on philology.¹

III.

The third relation, that of Psychology to Philosophy, is a burning question. Much of the misunderstanding comes from ignorance of what psychology is, but the greater part from the manifold meaning given to philosophy. The following remarks on the character and position of philosophy, although very brief, may yet appear too long for this place. Nevertheless, the condition of uncertainty in regard to herself into which philosophy has sunk, and the continual confusion which this causes in psychology and other sciences, render it necessary to settle what we mean by the name Philosophy.

Philosophy is the most general science. The "most general science," however, has been variously understood. (1) According to one party it is the foundation of all others; it has in advance to develop the fundamental concepts; it is the "science of science" (Fichte's *Wissenschaftslehre*); it is the *science of pure thought previous to all experience*. All such spinning of mental cobwebs and blowing of philosophical bubbles belongs to a bygone day, and can be passed by without further remark. (2) According to others philosophy is an extract of the most important facts from all the other sciences, a sort of condensed encyclopedia of the single sciences. Such a pocket-dictionary of scientific knowledge may be very useful, but it cannot be the science of philosophy. Science is something more than a collection or a selection of facts; it is the connexion of facts according to cause and effect. (3) The third view of philosophy regards it as the science of sciences, not, however, as a doctrine previous to investigation, but as a result of all the sciences. It is not at all a mere collection of facts, but a consistent system of all the general principles.

All the special sciences treat objects from separate points of view, and each has its own peculiar method and arrives at its own conclusions. Consequently, the results arrived at stand unconnected, disproportionate and often contradictory. Such a condition does not satisfy us; there is in human nature the most commendable desire for an explanation of things. In early ages man learned large masses of facts

¹ *Abriß der Sprachwissenschaft*; I. Theil, *Die Sprache im Allgemeinen*; *Einleitung in die Psychologie und Sprachwissenschaft*.

about the earth, the heavenly bodies, his own passions, &c. ; to-day the single sciences furnish us with immeasurable quantities of knowledge on all sorts of subjects, but we are forced by our very nature to make demands for more than facts : we must have some system, some theory, to explain the whole sum of our knowledge.

The Special Sciences, on account of their speciality, fail in completeness in three respects : (1) in regard to the general concepts and the general principles that they all have in common ; (2) in regard to the general limits and determinations of knowledge and truth ; (3) in regard to their fundamental methods. To correct these deficiencies three general sciences have been established, namely :—(1) Metaphysics, (2) Epistemology, (3) Methodology. These are generally called the philosophical sciences.

The science of principles, Metaphysics or Philosophy in the narrower sense, seeks from the agreement of the results of all other sciences to establish a system of the principles that underlie all existence, *i.e.*, a theory of the universe, material and mental. It also establishes a system of principles for each of the various material and mental sciences, not on the foundation of that one science alone, but on that of all the sciences. It investigates the principles of cause and effect, substance and quality, and other fundamental ideas common to all sciences.

The mental sciences yield a vast store of facts and laws. In like manner, the physical sciences and the mathematical sciences all yield an enormous amount of material. Out of this mass Philosophy proceeds to build its system. One-sided philosophies select parts to suit themselves, but such systems can have comparatively little worth. If philosophy neglects or depreciates the mental sciences, it puts up a solid mass of stone and mortar without windows or stairways or doors, and then invites us to take lodgings in this materialistic hotel. If it neglects the physical sciences, there arises an air-castle of idealism, lacking foundation and exposed to the danger of being blown over by the next breeze.

Psychology stands in a double relation to metaphysics. Together with the other special sciences, it furnishes material for the science of general principles, and thus assists in the establishment of a general view or theory of the universe. After the general principles have been determined by metaphysics, philosophy has the duty of correcting the special sciences when they set up one-sided hypotheses, and of helping where they are unable to proceed alone. Thus we have a philosophy of the natural sciences, which shows

how the hypothesis of matter explains the phenomena and laws of nature, &c. We have also a philosophy of psychology, whose duty is to show how the principles and hypotheses of cause and effect, of mind, of the psychophysical relations of identity or incongruity or parallelism of mind and matter, &c., can explain mental acts.

An example will make this clear. We continually experience the passage of ideas; they follow one another more or less rapidly, and appear to obey certain laws. It is the duty of psychology to investigate, observe and record as accurately as possible the facts of this association of ideas, to establish the laws which it obeys, to advance and test psychological hypotheses for their explanation.¹ It can set up the hypothesis that all ideas of experience are connected with each other, that ideas may be connected by means of unconscious elements, &c. So far it is a special science, the science of mental processes. It can also *test* the association according to the relation of cause and effect, or as a function of mind: but these latter and all wider-reaching hypotheses can be set up and considered for themselves only by a science that takes a position such as to command a view, not only of mental phenomena, but also of material phenomena; the hypothesis of cause and effect, or that of mind, cannot be properly set up and tested on the ground of mental processes alone.²

A wider-reaching science is needed; the question must be viewed more generally. A science which treats of mind or of the relation between mind and body must be to a great degree a general science; it must be philosophical or semi-philosophical. The science of mind has long been called psychology, and psychology is, therefore, considered a part of philosophy. But psychology as a special science, treating mental processes from its own standpoint, and psychology as a general science, treating mind, relations of mind and matter, &c., from the standpoint of philosophy, cannot help being two distinct things. The unfortunate identity of name is an injury to both, and sooner or later must be removed. The general tendency seems to be to settle the question thus:—"Psychology" is to mean the science of mental processes; the general science of mind is to take one of the

¹ Such an investigation is begun in the memoir mentioned above, p. 312 n. See also "Vorstellung und Gefühl" in *Philos. Studien*, vi. 4.

² By the term "mind" is here meant the substratum or carrier of mental phenomena; no opinion on the existence or the character of mind is meant to be expressed.

names it often goes by at the present, "Speculative Psychology," "Rational Psychology," or, better yet, it is to indicate its close relation to philosophy as "Philosophical Psychology". Such a distinction would save a great deal of confusion, and redeem both sciences from some of the discredit of the past.¹

There is one other science commonly included in philosophy which must be taken into consideration here. The relation of Psychology to Logic depends entirely upon what logic is. This question, however, forms a bone of contention among logicians themselves. The only thing to do is to consider the relation of psychology to the various objects which are generally treated by logic. These are cognition, thought and the methods of investigation.

The relation of psychology to cognition or knowing will be clear if the distinction between special and general sciences is kept in mind. Every person has sensations, perceptions, and ideas of all sorts. These are all material for our science. But he often has sensations which he calls illusions; he has dreams, fancies, air-castles, which he more or less decidedly stamps as untrue in order to distinguish them from other ideas which are true. From childhood he has been systematising his experiences into classes of truth and untruth. This system has been ever changing, but on each occasion he decides whether he knows a thing, whether it is true or not, in accordance with his criterion, his doctrine of knowledge at that time.

The doctrine of knowledge is the science of the conditions, limits, and principles of knowledge. It seeks to determine the circumstances under which, the degree to which, and the principles according to which, our experiences can be considered true. With these characteristics of the doctrine of knowledge kept in view, psychology runs no risk of overstepping its proper limits. Presentations, ideas, feelings, thoughts, dreams, fancies, madmen's ravings, are subjects for investigation. Its duty is to determine the conditions and laws of dreaming as well as of waking; but it has not a word to say in regard to the truth of either. These are two distinct problems, and should be assigned to two distinct sciences. Psychology has to investigate the phenomena,

¹ That the difference between modern psychology and speculative or philosophical psychology is not confined to the name is indicated by the diametrically-opposed ways of gathering the facts of mental life. The old philosopher betook himself to a quiet retreat (Hume) and *thought them out*, whereas the psychologist of to-day in the laboratory carefully measures and records his experiences.

not to sit in judgment on them. The science of cognition has to accept the phenomena furnished by all of the sciences and to pass its decisions, not after hearing only one side of the evidence, but with impartiality.¹

All agree that logic is a science of thought. But since thought is just as much as sensation, emotion, volition, a kind of mental process, it is, therefore, also a subject of psychology. That thought in waking is different from thought in sleeping; that Smith thinks more quickly than Brown; that a student of mathematics will think out the answer to a problem in geometry correctly and easily, but will make absurd mistakes in attempting a medical diagnosis, — are all interesting subjects for psychology, but lie outside of logic. Psychology treats thoughts as we think them; Logic, as we ought to think them.

Since a classification of the sciences was made above, we are perhaps justified in pointing out that there are two distinct, though connected, sciences—the doctrine of knowledge, Epistemology or *Erkenntnisslehre*, and the doctrine of methods, Methodology or *Methodenlehre*. Each of these treats of thought for its own distinct purpose: epistemology inquires what truth is and how it can be obtained; the doctrine of methods gives practical rules for obtaining it. The name Logic is given sometimes to both, sometimes only to the former, sometimes only to the latter. The doctrine of knowledge determines what the truth is; the doctrine of methods determines how we ought to think. According to this distinction, epistemology holds much the same relation to the doctrine of methods that psychology holds to pedagogy. Like pedagogy, methodology is one of the didactic sciences, whereas epistemology is one of the fundamental parts of philosophy.

The relation of psychology to these sciences can be represented thus:—

Psychology : $\left\{ \begin{array}{l} (1) \text{ Epistemology} \\ (2) \text{ Methodology} \end{array} \right\}$ Logic ::

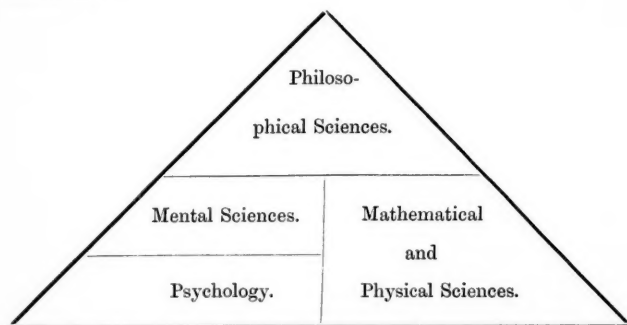
Mental Phenomena : { (1) The judgment on the truth of phenomena.
(2) The methods of obtaining truth.²

¹ To make confusion worse confounded, the doctrine of cognition is often called "psychology". Even the newest "Psychology" declares that "the psychologist necessarily becomes an *Erkenntnistheoretiker*".

² One of the great books of the day has mixed together three sciences under the name *Principles of Psychology*. Part of it consists of the most accurate observations and the sharpest scientific thought concerning mental processes—so far, it is scientific psychology; part is a

Philosophy, as generally understood, is the sum of the three sciences—metaphysics, epistemology, and methodology; or, if methodology is to be reckoned with the didactic sciences, philosophy will include only metaphysics and epistemology. It will, however, not include psychology, physics, botany, chemistry, physiology, or any other of the special empirical sciences. The fact that physics makes use of the concepts of space, time, matter, force, &c., and that psychology investigates their mental origin, makes neither of them a part of philosophy; and just as little does the fact that psychology points out the postulate of universal validity, which always accompanies logical thought, make it a part of epistemology, or epistemology a part of it. The only sense in which philosophy can be said to include psychology is that according to which those portions of metaphysics treating of the principles of mental phenomena are often called “psychology”; but, in exactly the same manner, should those portions which treat of the principles of material phenomena be called “physics”. Physics and the newer psychology are, however, something quite different from the metaphysics of matter and mind.

The following diagram expresses the relations of these sciences:—



IV.

The last relation we have to consider is that between Psychology and Pedagogy. The didactic sciences are of two

consideration of psychology from the general standpoint of philosophy, treating the relations of mind and body, &c.—philosophical psychology; part treats the relations of mental phenomena to truth—epistemology, or the doctrine of knowledge.

kinds: the sciences of the general principles or ends to be obtained and the sciences of the means to attain these ends. The general purposes can be either dogmatically or scientifically determined. "Love thy neighbour as thyself," "Know thyself," are dogmatic enunciations of general principles; "Nothing is to be believed that is not proved" can also be dogmatic; but the decision that the power of judgment is a more important factor than memory in an individual is a statement which has worth only upon scientific foundation. Have the dogmatic principles any worth as such? That is an open question. There exist, however, sciences which with proper methods establish the general objects to be sought for; these are the general didactic sciences. Among these is General Pedagogy, which determines the ends to be sought for in education.

When the general ends have been dogmatically set up or scientifically obtained, then the special didactic sciences teach the means of attaining them. The special sciences furnish the data; the special didactic sciences teach how to use these data in order to reach certain ends. Anatomy and physiology, for example, furnish data concerning the physical organism; a certain condition of the body is regarded as the proper one; it is the duty of hygiene, on the foundation of physiology, to teach how to maintain this condition. Likewise, certain conditions of mental life and certain traits of character are determined as desirable and proper; how to obtain and maintain these conditions, and how to develop these traits, are problems of Special Pedagogy working on the basis of psychology.

For psychology the ambition of Napoleon is as interesting as the patriotism of Washington; the childish thoughts of primitive tribes are even more carefully cherished than the clearest reasonings of a philosopher; they are all material for investigation. The general science of pedagogy, or some rule of life, determines that clear reasoning is better than childish reasoning; that, although to a certain degree ambition is to be desired, yet patriotism is more important. Thereupon the science of special pedagogy teaches how the desirable qualities are to be developed and the undesirable ones suppressed. Psychology furnishes the foundation of fact; the science of general pedagogy judges which of these facts are desirable, in much the same way as epistemology judges which are true; the practical duty of bringing forward or repressing these facts is the duty of special pedagogy.

In the foregoing attempt to define the problem of Psychology an establishment of the following statements was striven for:—

(1) Psychology is the science of mental processes, not mental products.

(2) It is a mental science, not a physiology of the brain.

(3) It is one of the special sciences, not a part of philosophy.

(4) It is a descriptive and explanatory, not a critical science.

(5) It is an indispensable auxiliary to the physical, other mental, philosophical and didactic sciences.

II.—THE PHYSICAL BASIS OF PLEASURE AND PAIN. (I.)

By HENRY RUTGERS MARSHALL.

I.

IN an article already published (MIND No. 56) I have endeavoured to gather together in brief the psychological evidence which indicates that Pleasure and Pain are primitive qualities which, under proper conditions, *may* appear with any psychosis, whatever be its content. In closing that article I drew attention to the fact that this psychological theory, if a true one, should be found to throw light upon the problems relating to the physical basis of pleasure and pain. I shall attempt here to bring into relief the outlines thus revealed, and to show that the position already reached psychologically is corroborated, if we accept the view to which our investigation as to the physical basis of pleasure-pain phenomena leads us.

Every reasonable theory which is strongly and honestly defended is based upon some emphatic experience, which the theorist grasps clearly, and to which he attempts to relate all other experience at all connected with it. With any complex phenomena, therefore, which have been long under consideration, we may usually get at the indisputable data of experience by examining the special facts which have formed starting-points for serious discussion of the subject.

It will be found, I think, that all the most notable pleasure-pain theories may in the first instance be placed in four groups, determined by the emphasis of certain kinds of pleasure or of pain, which, therefore, we must accept as data of pleasure-pain experience.

A. The most emphatic of our experiences are the pains which we are able to connect with tissue-destruction, and the earliest theory which suggested itself may not improbably have been determined by consideration from this standpoint. The theory which Plato upheld, that violation of limit is the basis of pain, and which was probably a theory current in his day, evidently arose from such consideration. The attempt to account for pleasure as an opposite of pain led him to the materialistic theory of replenishment, as being

the basis of the restoration of limit: a theory which showed its weakness under Aristotle's rigid analysis, who felt that pleasure could not be looked upon as a *process*. As he says, "it is a whole, and we cannot at any particular time receive pleasure, the species of which would be perfected if it lasted a longer time".¹ The strength of the Platonic view lies in the fact that it serves to correlate the sharpest of pains with the pleasure of relief from pain and of rest. Horwicz, in his *Psychologische Analysen*, has adopted this theory in a form to which reference is made below. So acute a thinker as Delboeuf has formulated his views as to pleasure-pain avowedly on the same lines. As the most developed form of this theory, it deserves examination.

"Sensation," says Delboeuf, "is accompanied with a sentiment of pain as the result of approach to the limits of total exhaustion or the departure from the position of natural equilibrium. It is accompanied with a sentiment of pleasure as the result of departure from the limits of exhaustion or the approach to the position of natural equilibrium."² Now this theory of pain, *as it stands*, evidently fails to take account of the pains of restriction of normal activities; for reference to Delboeuf's formula shows that for him "departure from the position of natural equilibrium" means *in the direction of activity only*; and it still more evidently fails in the fact that not even all these "departures from the position of natural equilibrium" can be shown to be painful, for a large proportion of our pleasures (those of Exercise) are most evidently in the direction of exhaustion and involve a distinct departure from equilibrium. The pleasure-theory, which he directly refers back to Socrates's observation of relief from restriction, fails to take account of these same pleasures of exercise, which we shall presently see are of great importance. While the theory covers the ground of the pleasures *following* excessive, exhaustive action, it does so, I feel, on spurious grounds. For Aristotle's psychological objection remains unanswered, and on psychophysical grounds it may well be asked what evidence we have elsewhere that processes of replenishment or repair are directly, *per se*, brought into consciousness at all.

Mr. Herbert Spencer also treats of pain as due to violation of limit, pains of restriction as well as those of excess being concomitants of departures from the normal. He fails, however, to make clear why pain should arise with non-action,

¹ *Ethics*, bk. x. ch. 4.

² *Éléments de Psychophysique*, p. 182. I have re-arranged in translating.

which no psychophysical theory would hold to involve consciousness at all. He recognises the difficulty, but does not face it.¹ An equal failure of his theory lies in his discussion of pleasure. Since the judgment of most observers is against the view that pleasure is a concomitant of *normal* activities—as would naturally follow from the arguments which go to show pain to be a concomitant of abnormal activities—Mr. Spencer finds himself constrained to maintain the connexion with “medium” activities. That intense pleasures involve hypernormal activity we have already noted; the connexion with “medium” activity can, therefore, be maintained only on most general grounds, and definition of the word “medium” is demanded. Mr. Spencer acknowledges the difficulty here, and attempts to solve it by reference to evolutionary doctrine. On broad lines, it is evident that the extreme states of restriction and of excess with which pains occur are detrimental to the organism, and hence we have the inference that “medium” activities which are productive of pleasure are beneficial; which in a general way seems to be upheld by observation. A most interesting fact this is certainly; but, as he goes on to show, one which merely amounts to this: that if we grant pleasure to be a “feeling which we seek to bring into consciousness and retain there,”² that race must persist which takes pleasure in beneficial actions. Now, to me this appears to be a clouding of the question, and not an elucidation of it. The problem, as he himself states it, still remains, *viz.*, “What constitutes a *medium activity*?” He has told us: Pains are concomitants of excessive activities; pleasures are concomitants of medium activities. When we ask ourselves what is meant by “medium activities,” we find merely an added reference to organic evolution, so that we are able to restate his propositions, adding the words in *italics*, thus: Pains are concomitants of excessive activities *detrimental to the organism*. Pleasures are concomitants of medium activities *advantageous to the organism*. But again we are brought to face the old question: How do we know non-excess, medium activity—except by its pleasure-quality, which we are attempting to explain? If the hypernormal action is pleasant it is called “medium”; as soon as it becomes painful it is said to be excessive.

¹ *Prin. of Psych.* i. ch. 9, § 123.

² As Mr. Edmund Gurney has noted in his *Power of Sound*, it is more than doubtful whether the ingredient of impulse implied by this definition is to be found in all pleasure, and the same may be said of pain as it is defined by Mr. Spencer.

B. Those notable pleasures of relief which come after the pains of hypernormal action have naturally led to theoretical consideration. The quiet time of rest turns one of contemplative habit to thought of the stream of consciousness, and the presence in that stream of full pleasure with remembrance of the pain-writhings of a while ago must attract attention. In this emphasis of the pleasures of rest and the attempt to relate pains to these pleasures we have the basis of certain modifications or inversions of the theories just discussed. Hence apparently the theory that pleasure is connected with equilibrium, and that pain is a state of tension, as upheld by Horwicz¹ and Mr. Leslie Stephen.² Some objections to this theory have already been touched upon. The explanation of the pleasures of rest depends upon restoration of equilibrium, and this position is open to the objection made above against Plato's position as to replenishment. On the other hand, the pleasures gained in exercise, as already noted in discussing Mr. Spencer's position, require a departure from normal activity in the direction of excess—a loss of equilibrium.³

In this emphasis of rest-pleasures we apparently have also the starting-point of those contrast-theories which in one form or another appear from the days of early Greek philosophy up to our time. Plato gave answer to the Cyrenaic and pre-Socratic theorists of his own time who contended that pleasure was mere absence from pain when he presented the notion that pleasure is determined by replenishment. He opposed their position on the ground that there is a neutral state which is neither pleasure nor pain,⁴ which could not be the case if all *not-pains* were pleasures. Notwithstanding this opposition, the Epicureans clung to the Cyrenaic doctrine. In forms more or less extreme it appears in the thought of such men as Bruno, Leibniz, Locke, Hume, and Schopenhauer. But contrast cannot give a satisfactory explanation of either pain or pleasure. Although the change from pleasure to pain, or *vice versa*, brings the newer of the two states into effective prominence, it is patent that there are many pains which arise without

¹ *Psych. Analysen*, ii. 2, p. 40.

² *Science of Ethics*, p. 51.

³ While Horwicz acknowledges this fact, he escapes its difficulties by adopting the strained hypothesis that the pains attending excess are really there but covered over by the pleasure of the restored state of equilibrium, which still fills consciousness.

⁴ *Republic*, bk. ix.

antecedent noticeable pleasure and many pleasures which arise out of states which involve no pain.

C. This world is full of disappointments, of curtailments, of restrictions; and it is easy to understand why the bitter pain which they bring, none too seldom to the student and thinker, has appeared to theorists to be most fundamental, the state to which all other pains and all pleasures must be related. These pains make the basis of pessimistic doctrine, and the pessimist not unnaturally finds himself making pleasure merely secondary as relief from the normal state of pain. That a large proportion of our pains are connected with unsatisfied needs does not cover the fact that excessive action in the direction which has given satisfaction of these cravings brings the sharpest of pains. That a large proportion of our pleasure is determined by satisfaction of needs does not explain those pleasures directly connected with the very cessation from activity, which, in the end, develop physical needs and their psychical cravings.

The pleasure-pain theory of Herbart and his school is almost certainly based upon the observation of restriction-pains. Beyond the difficulties just noted, however, there is an objection to Herbart's special position in that consciousness itself as we find it must, by his theory, be always dependent upon mutual antagonism of presentations, and thus all consciousness ought to be, in some degree, painful. This difficulty is but imperfectly covered by Herbart's explanation that pain is determined by arrest, which does not consciously modify the content. Volkmann avoids explanation, setting aside the difficulty in part by the summary process of supposing that, in all cases where there is no pain, the mental side of the process is below the threshold of consciousness. He endeavours to make the position clearer¹ also by supposing mood (*Stimmung*), an expression of vital function, to have a unity of its own; an unyieldingness (*Unnachgiebigkeit*), which covers not the whole quantum, however, but a mean between two extremes. Where the contrast within the sphere of yieldingness is brought into consciousness it gives us disagreeableness and not pain proper.² Pain is thus due, not to a mere increase of an indifferent stimulation, but to an opposition between stimulation (*Reiz*) and mood (*Stimmung*), the conscious side of vital function. On the other hand, Herbartians would

¹ *Lehrbuch der Psychologie*, i. 242-8.

² This distinction between disagreeableness and pain seems to me to be not warranted by experience.

determine pleasure by the superfluity of the mutual support which presentations give one to another :¹ and this suggests the query: What support can be superfluous under the Herbartian view? This building-up of theory, hypothesis upon hypothesis, ingenious and brilliant as it is, is not *proper* to psychology unless it overcomes the difficulties connected with the problems involved; which, in my opinion, this theory fails to do. As Wundt² points out, the greatest difficulty with it is that it is unable to explain the simplest sensual pleasures. What is accomplished is, after all, little more than a restatement of ignorance with pretence of scientific form.

D. The pleasures which are obtainable from bodily exercise have with good reason attracted attention, and it is not unnatural that the earlier races whose lives were filled with physical action, with whom fame was determined by skill and strength in muscular performance, should have made this emphatic pleasure the beginning of consideration. This was the basis of Aristotle's theory of pleasure, which, doubtless, embodied the thought of many before him. His theory, unfortunately, has not come down to us in such clear-cut and complete form as we could wish. We may put it thus:—"Pleasure is the accompaniment of the energising of a sense in perfection when to it is presented a suitable object of the most perfect kind".³ Although the theory as stated is far from satisfactory, Aristotle's enormous influence has led to a special study of the pleasures of exercise, and to this study we may trace a large proportion of the best thought-out theories of the past. These theories, although open to serious objection, show persistent life which argues not the blind following of a leader, but conviction, which Aristotle himself must have felt, that in the pleasures of exercise we shall find the key to the psychological problem of pleasure and pain. The theory, therefore, deserves more than ordinary attention, and I shall return to it later; here I merely wish to note its weakness, as pointed out by J. S. Mill in his *Examination of Hamilton*, who adopts the Aristotelian view in a slightly-modified form. Mill shows that

¹ Cp. *MIND*, xiii. 489.

² *Phys. Psych.* i. 534 (3te Aufl.).

³ In *Ethics*, bk. x. ch. 4, he tells us (Browne's translation):—"Pleasure perfects an energy". "The most perfect is the most pleasant; and the most perfect is the energy of that which is well disposed with reference to the best of all the objects which fall under it." And again, in ch. 5:—"Pleasures contribute to increase the energy". Cp. also Hamilton's interpretation, *Lects. on Metaph.* ii. 452.

the perfection of action, in a large proportion of instances, gives no sign except the pleasure itself which it is held to explain (and similarly, *mutatis mutandis*, of pain); hence, if the theory be stated in the form of propositions for pleasure and for pain, these propositions are inconvertible.

The theory has been felt to be incomplete, but the pleasures of exercise which it emphasises have suggested other theoretical positions. Leibniz, following Hobbes, held that pleasure is due to the cognition of furthered vitality; and pain to the cognition of depressed vitality. This theory has been especially suggestive to many later writers. Bain's "Law of Self-conservation" reads thus:—"States of pleasure are connected with an increase, states of pain with a decrease, of some or all of the vital functions".¹ Höfding holds that "pleasure in any case stands as the expression of increased life, and pain as the expression of a falling-back".² Fouillée expresses his theory in almost the same terms.³ Bouillier's⁴ atomistic theory that "love of life is the basis of and the typical pleasure," and "fear of death the basis of and the typical pain," tells the same tale, and we find the same general notion in more casual expressions, such as that of Clifford, that "the sense of increased power is the basis of all higher pleasure".

Bain's law, as being the most known, may be taken for consideration. Pleasure, he says, is connected with an increase of some or all vital functions; pain, with a decrease of some or all vital functions. If we attempt to convert these propositions we find ourselves at once in difficulty. It surely is not true that *all* increase of vital function is connected with pleasure, for in the case of specific organs pain accrues when the action is increased until it has become excessive, as common speech has it. It is equally certain that not *all* decrease of vital function is connected with pain, for the lowering of the functioning of a specific organ which has been bringing pain often yields us pleasure. In such cases it may indeed often be shown that the pain has been connected with a decrease of energy in the system as a whole, and the pleasure with a corresponding general increase of potentiality. Hence it appears that the law, to hold at all, must be referred to the organism as a whole, and not to the organ

¹ *Mind and Body*, ch. 4.

² *Psychologie*, p. 344.

³ *Pop. Science Monthly*, xxxi. 818.

⁴ *Du Plaisir et de la Douleur*.

which is active. This may, perhaps, be made clearer by taking one of Prof. Bain's instances. "The pleasures of healthy exercise and of rest after toil" are evidently both connected with processes indirectly increasing the vitality of the *organism*; but if the application of the principle be attempted in reference to the active organ, vitality means two different things in the two cases. In the case of healthy exercise it means increased vital functioning, and in the case of rest it means *capacity for* increased vital functioning. It is the same with pain. Pains of restriction and of "excess" are both connected with processes indirectly decreasing the vitality of the *organism*. If, however, reference be made to the *active organ*, decreased vitality in the case of restriction means decrease of vital functioning; while in the case of "excess" it means *decrease of the capacity to function in the near future*. But if we give the law reference to the organism as a whole, it seems to me it is still open to very grave objection. Painful fatigue, for instance, which certainly is not *directly* connected with decreased vital functioning of the organism, is not even always *indirectly* connected with it in the long run; for, while the *capacity to function* decreases temporarily, it is not infrequent that painful fatigue, if not carried too far, is connected with the growth of powers, which, on the whole, add greatly to our vitality. It becomes necessary in such cases to shift back again and to refer the loss to the capacity of the specific organ. Again, certain specific pleasures bring general organic detriment, and we are forced here to refer the *pleasure* to the gain of activity in the special organ itself. This necessary shifting of ground is very unsatisfactory.¹ That there is an important connexion between pleasure and pain and heightened and lowered vitality respectively for the organism is apparent, but that the connexion is indirect is evident also,—as is acknowledged by Prof. Bain himself in drawing attention to such startling exceptions as the painfulness of the cold bath which is advantageous, and in explaining the "painlessness of certain diseases" on the ground that "the connexion of pleasure with vitality, and of pain with feebleness, does not apply to all organs alike".

Prof. Bain, in his supplementary law of "Stimulation and Exercise," makes a step away from the general vitality-theory in the direction of exclusive reference to the organ whose action is involved in the mental content. When he tells

¹ Cp. Sidgwick's *Method of Ethics*, 4th ed., p. 185.

us that "to stimulate or excite the nerves with due regard to their condition is pleasure, to pass the limit is pain," he turns our attention to the examination of the specific nerve-organ involved and not to the vitality of the whole system.¹ In this direction we shall presently follow him: but his theory, as stated, is not of great practical value, for what "due regard to their condition" means is not evident, and so far as I can see we have no guide to show us when the nerve is acting with this "due regard" other than the pleasure itself which we are endeavouring to explain. Such a form of argument in Hamilton has received the full force of J. S. Mill's cutting criticism, as above noted.²

Mr. Herbert Spencer's theory of pleasure-pain, above touched upon, appears on its face to be a version of the vitality-theory; at all events his words lead one to believe that he so considers it;³ but, as I have above shown, his argument relates rather to the present distribution of pleasures and pains in the race than to their essential nature. Like Bain's, it cannot claim to be more than a law of indirect application, and it is of less value than Bain's in one view, because founded so largely upon hypotheses which are not above suspicion. Evolution has done little for us on the whole in its most noted supporters, except in the strong emphasis given by Mr. Spencer to the fact, long before noticed, that the theory which traced pain to restriction and that which traced it to excess of action may both be correct in part. Difficulty arises in defining what is *too little* and what is *too much*; and, further, in defining the conditions of pleasure as apart from the wide region between the two states of pain, which is ordinarily called indifferent. Dumont, in his *Théorie Scientifique de la Sensibilité*, after a very thorough review of the work of his psychological predecessors, has adopted what is essentially a restatement of the vitality-theory in a form which appears on its face more scientific, but which proves no more satis-

¹ It is to be noted, however, that Prof. Bain (*Senses and Intellect*, p. 295) is not willing to allow that it is proper to rely exclusively upon the effect in the organ of the content.

² Prof. Bain (*Mind and Body*, p. 62) holds that "the principle connecting pleasure with increase of vital power receives confirmation from outward displays under pleasure and pain". But I feel that if this prove anything it proves too much; for, as Fechner has noted (*Vorsch. d. Aesthetik*, ii. 265), the greatest pains stimulate us often in the strongest manner, and it is impossible to refuse to call this a heightening of life, if we are to explain thus the expressive action in cases of pleasure.

³ *Prin. of Psych.* i. end of § 123.

factory. According to him (p. 67) pleasure is determined by an augmentation of the *ensemble* of forces which go to make up the Ego, and pain by their diminution. This definition is open to all the objections which Mill raised against Hamilton—which Dumont, however, waives aside as unphilosophic—and in its application is open to many others, consideration of which would be out of place here. It may be mentioned in passing, however, that he is able to explain the facts which experience gives us only by a shifting of term-meanings. "Force," as he uses the term, in some cases means what is ordinarily called *activity of nerve*, and in other cases it means *ability to act*. Paulhan¹ has referred pleasure and pain respectively to increased and decreased nervous systemisation, which, I take it, is a modification of the vitality-theory, but not an advance.

Closely related to these theories, but separated from them as leaving physiology aside and being purely psychological, we have Dr. J. Ward's very notable restatement of the Aristotelian position. "There is pleasure," he holds, "in proportion as a maximum of attention is effectively exercised, and pain in proportion as such effective attention is frustrated by distractions, shocks, or incomplete and faulty adaptations, or fails of exercise, owing to the narrowness of the field of consciousness and the slowness and suddenness of its changes."² As this statement is not correlated to physiological conceptions, it is, strictly speaking, apart from our subject just here, but it may be appropriate to note that we do not find what is to tell us when the exercise of attention is effective except the pleasure, or when it is frustrated or fails of exercise except the pain.³ Nahlowsky's theory, that pleasure-pain is the immediate consciousness of the moments of rising or lowering of its own psychic life-act, is evidently an outcome of the consideration of exercise-phenomena, but it has stepped away from the effort to give a purely psychological explanation of pleasure-pain facts in the direction of such metaphysical statements as we find in Descartes, Kant, Lotze, and Wundt⁴—all of

¹ *Phénomènes Affectifs*, p. 96.

² *Encyc. Brit.*, art. "Psychology".

³ Note objections raised by Mr. F. H. Bradley, *MIND* No. 49.

⁴ This, so far as Wundt is concerned at all events, is not to be looked upon as any *knowledge* of advantage or disadvantage, whether conscious or subconscious; for he objects to any *Erkenntnisstheorie* of this kind on the ground that it first seeks the objective cause of feeling (*Gefühle*) in order to transfer to itself the original essence of feeling (*Phys. Psych.* i. 540). And so with Lotze, who holds that pleasure is felt when the

which gain their inspiration from the conception of healthy exercise, and which may be summed up in the words of Horwicz:—"All pleasure-pain (Gefühl) is the direct expression of the impulse towards self-maintenance of the soul: which feels that pleasant which harmonises with the conditions of well-being, and the opposite unpleasant".¹ This is not far from Lipps's theory,² which relates pleasure and pain to intensity which, in certain degrees, is favourable (günstig) to the soul and then gives pleasure: when, on the other hand, it is an obstruction (Hemmung) it gives pain. The theory cannot be carried into detail without raising a demand for other conditions than mere intensity. Certain intensities which give me pleasure in a certain psychosis at one time will give me pain at another. Many other difficulties of a kindred nature appear upon a close consideration. From here the step is short to mystic self-deceptive positions, which give us under the form of explanations mere verbal elaborations of our ignorance.³

Such purely destructive criticism as I have above indulged in is always unsatisfactory, for it seems to indicate lack of appreciation of the value of the thought which others have given to the subject reviewed. But here I can do no more than state the grounds which lead me to discontent with the theories discussed. All theories worthy of note will be found, I think, to be reducible, in whole or in part, to one of those mentioned. And, while this examination has given us little upon which to rest, we have at least pointed out some few cardinal facts which must be explained by any satisfactory theory, and which may well form the starting-point of our investigation here.

1. There is a general agreement, with but few dissenting voices, that all pleasure is at the bottom the same thing, and

soul grasps the fact that hypernormal stimulation carries with it an increase of restored capacity; pain, when it grasps the fact of a decrease (*Med. Psych.* p. 286). He was too clear a thinker to identify this increase of restored capacity with direct increase of vitality, as we have seen some of our modern authorities have done. He feels it necessary to place the soul, as that which grasps, between the "feeling" and what is to result from the action to the benefit of vitality.

¹ *Psych. Anal.* i. 169.

² *Grundtatsachen des Seelenlebens*, pp. 206 ff.

³ What gain is there to knowledge in such words as these:—"Als den Ausdruck jener inneren Beziehungen, in welche eine Vorstellung oder eine Verbindung von Vorstellungen zu dem allgemeinen Bewusstseinszustände des Individuums tritt, betrachten wir die Gefühle"?—Kraepelin, *Phil. Studien*, ii. 327.

that all pain in its essence is a single psychological phenomenon. What is more, there is always found the same practical agreement that pleasures and pains are or should be unifiable: that we should be able to bring them into clear and intimate relation with one another.

2. There are certain facts so marked in experience as to have become the basis of the majority of pleasure-pain theories. These must be explained and related to each other:—

(1) All pleasures which we can experience may be referred to one of two great classes:—

- (a) Induced by active functioning.
- (b) Connected with cessation of activities.

(2) There are states, which are usually called indifferent, in which we note no distinct pleasure- or pain-quality.

(3) All pains which we can experience may be referred to one of two great classes:—

- (a) Connected with excesses of function.
- (b) Connected with failures to function.

It must be our aim, so far as it may be possible, (a) to find a single basis for all pains and a single basis for all pleasures; (β) to find a common ground for unification of pains and pleasures; (γ) to sketch a theory which shall explain the facts acknowledged in the experience of thinkers as indicated by their theories; and (δ) to discover the basis of truth in the notable expositions which have come down to us.

II.

The reader who has noted the wide influence upon theory, produced by the experience of pleasurable Exercise, will not regret that my own consideration leads me to ask attention at the start to the theory which these experiences have developed. For surely the line of thought to which master-minds have again and again returned must be worthy of especial consideration, even if it has not given us the solution of our problem. In these days of reading and writing and thinking, the pleasure of exercise suggests the wide field of intellectual activities, as well as those which are, in a way, judged less noble. But the pleasures of the exercise of definite bodily organs are so vivid and typical that to them we certainly should look at the outset.

Aristotle's definition makes reference to perfection in the object stimulating the active organ. Whatever this perfec-

tion may mean, it is apparent that the condition of the organ which acts determines the pleasure-pain quality, for, with no change of object, or of the stimulus which it brings, there is very frequently a complete change from pleasure- to pain-quality, and this can only be accounted for by some change in the receptive organ.

Upon a superficial examination it seems natural to connect the pleasure of exercise in an organ with the efficiency of that organ, *i.e.*, with its ability to function vigorously. Pain, as involved in exercise, on the other hand, appears as similarly connected with an inefficiency in the organ—an inability to function normally in relation to the stimulus received. It will presently appear also, I think, that this position, while requiring explanations and definition of terms to bring the different pleasure-pain facts into relation, on the whole does not present any formidable difficulties *so long as we understand it as the interpretation of pleasure and pain in connexion with the action of the specific organ which is giving us the content of consciousness.* But the modern notion which leads us to look upon the "brain as the organ of mind" and treats all the rest of the nervous system as mere *antennae*, so to speak, for this living, assimilating psychic centre, has led thinkers not unnaturally to take for granted that pleasure and pain have each a special *locus* in the brain, so that if the proper tracts are stimulated in one case we must experience pleasure, and in the other we must experience pain.¹ Here, however, arises a notable difficulty. Our pleasure-pain experiences shift from one phase to the other with the greatest possible rapidity and variableness with change of mental content, and this is incompatible with a theory which relates pleasure-pain to the efficient or non-efficient action of a brain-organ; for there is no reason at all to believe that the conditions of efficiency can so rapidly change as would be necessary for an explanation of the facts.

This difficulty, perhaps but dimly felt, leads to reference of the efficiency away from any special organ to the or-

¹ It is very natural that this step should be taken; the more so that so large a proportion of our pleasures and pains are not traceable to any special terminal organ-activity. That it is felt, however, that the pleasure-pain quality is really bound up as a quality of the content in the case of terminal organ-action is indicated by the theoretical search for a special kind of pleasure-pain conduction in the nerve carrying the stimulus to the brain, or for special pleasure-pain fibres bound up with the sensory fibres carrying the stimulus to the special pleasure-pain organ in the brain. (Cp. Lipps's *Grundtatsachen*, pp. 196-7; also Wundt, *Phys. Psych.* ch. iv.)

ganism as a whole (whence have arisen the vitality-theories with all their difficulties already referred to), and then by another step to a practical abandonment of the whole search, psychological and physico-psychological, in the theory that we have in pleasure-pain a separate kind of mental action—in fact, another mind than the knowing mind; two individualities, so to speak, on friendly terms with one another and walking hand in hand, but for all that separated by a great gulf of incompatibility which neither can overpass. And this, in its final outcome, must lead away from psychological to metaphysical position.

I have already argued (MIND No. 56) that there is every reason to look upon pleasure and pain as qualities which, given the proper conditions, *may* belong to any mental content,—qualities bearing a general resemblance to the quality of intensity, but with this evident difference that intensity in one shape or another *must* always be of the essence of each and every mental content. This view leads us back to pure psychology. The search for and localisation of organs of special mental contents does not now detain us, because, *wherever* the organ of the content may be, *there* will be the centre of the pleasure-pain quality. Holding this position as to the psychological nature of pleasure-pain, we find, it appears to me, the true interpretation of the Aristotelian efficiency-theory.

It was the observation of efficient or non-efficient action in organs which were clearly known that gave the theory its birth, and to these data of experience we return, but with a wider view of what an "organ" means in this connexion. From this standpoint the theory may read thus:—*The activity of the organ of any content if efficient is pleasurable, if inefficient is painful.*

Two difficulties at once become apparent:—

(1) An explanation is necessary as to the meaning of "efficient" and "inefficient". Discussion of this—the more important—difficulty I postpone for the moment.

(2) It seems apparent that two great classes of pleasure-pain are not covered directly by the theory, *viz.*, the pains involved in restriction of activity and the pleasures occurring with rest.

Those theorists who referred efficiency to the organism were able to overcome this second difficulty; for restricted activity is detrimental, and rest after extreme action advantageous in the main, to the organism as a whole. But, as we have seen, this reference to the advantage or disadvantage of the organism is fraught with difficulties

when we take into account those often-noted instances where sweets mean death and pains mean future vigour. These special facts point to the very position which we now wish to examine,¹ viz., that the inefficiency and efficiency of which pain and pleasure tell us are inefficiency or efficiency in the organ which is active in producing the content to which the pain or pleasure is attached. When we consider these states from this standpoint, we at once note that restriction of the normal activity in an organ clearly does not imply *action*, but rather *non-action*, in the organ restricted, nor does it imply *inefficiency* in the organ restricted. So restriction of the excessive activity of an organ in pleasurable resting evidently does not mean an efficient action in *that* organ. Restricted or sub-normal activity, in fact, really implies a shifting of psychosis, and *per se* involves the notion that the pleasures or the pains in such cases are determined by the functioning of other organs than those restricted. In fact, the difficulty here disappears altogether, it seems to me, if we take the view that the pain in one case and the pleasure in the other are due to inefficient action and efficient action respectively in other organs than those involved in the content which is restricted or quiescent. For is it not clear, when we come to think of it, that the pains of restriction and the pleasures of rest are systemic in origin? They differ most markedly from those pains and pleasures of action which cling to distinct and definite contents. They have no marked *locus*, are connected with no developing mental object.

My own experience tells me that, when an organ which has been over-stimulated is rested, the pleasure obtained is not only wider than was the pain which went with the over-stimulation, but that the content to which the pleasure clings is apart from the content which went with the pain: that when a normal action is restricted the pain is equally wide and has a content apart from that which would have gone with the normal action. In fact, the common occurrence and emphasis of this form of systemic and unlocalisable pleasure and pain enables us, in my opinion, to account for the existence of the notion that pleasures and pains are phases *sui generis*—unlocalisable, uncognitive. If, then, these particular pains and pleasures are connected with mental states which are barely above the threshold of consciousness and so widely distributed that no specific

¹ Cp. Lotze, *Med. Psych.* pp. 237 ff.; and Volkmann, *Lehrb. der Psych.* i. 230.

content can be attached to them in reflexion, it may be that they are still due to activities which are respectively inefficient or efficient (whatever these terms may be found to mean). We may defer further consideration of these pleasures and pains, therefore, until we have looked more closely into the nature of those which involve distinct mental contents, and by implication action in nerve-concomitants of the whereabouts of which we may reasonably claim to know *something*.¹

Returning, then, to the pleasures and pains of organic activity, we must ask what means *inefficiency* with which we relate pain, and *efficiency* with which we relate pleasure. We call an action inefficient when the outcome of a certain stimulus is less than the outcome we looked for as the result of our experience. As our experience varies, so will vary our notion of inefficiency; but, on the whole, we gain a fairly fixed notion of what we, in agreement with others like ourselves, ought normally to expect in the case of organs which are frequent in their action, and the variations of whose action in relation to varying stimuli have therefore become matters of full experience. The notion of inefficiency thus reached is an ill-defined one, to be sure, but it is fixed in our thought by the fact that with the failure to meet our expectation in this regard often springs up the special and notable quality which we call pain.

The emphatic cases which attract attention also are those in which we find (1) an unusual increase in the frequency of recurrence of the stimulus. The leg-muscle which is accustomed to contract at short intervals for an hour each day in a walk begins to produce pain if the exercise be continued for two hours, and we soon find that with this constantly-increasing pain goes a constantly-decreasing action of the muscle under a normal stimulus, or demand for increased effort to induce the continued action.

In another set of cases (2) we find the rhythm of stimulation not abnormal but the amount of the stimulus greatly increased; and here, too, we find pain and re-action less than experience leads us to look for. The man who constantly uses his hand in writing or drawing some day attempts to cut down a tree and finds the muscles of his hand which held his pen or pencil failing him rapidly and painfully.

(3) Still another set of facts attracts attention. The writer or draughtsman is some day reduced to weakness by

¹ It should be noted here that Bouillier (*op. cit.* p. 94) explains the pleasures of rest as systemic. (Cp. also Bain, *Senses and Intellect*, p. 283.)

fever. He resumes his duties, but finds that normal work of writing or drawing soon brings pain and inefficient outcome.¹

The first set of cases leads us to look for some condition of the organ which is relatively constant in time, and which has been disturbed by the abnormal rhythm of the recurring stimulus.

The second set of cases leads us to look for some condition of the organ which is relatively constant in amount, and which has been disturbed by the abnormal amount of stimulus.

The third set of cases leads us to see that this condition, relatively constant in time and amount, is disturbed by systemic weakness.

The thought of one who is acquainted with but the rudiments of physiology at once turns to the nutritive conditions

¹ Since the above was written, I have read the very interesting article by Dr. Warren P. Lombard in *Am. Journal of Psychology*, iii. 1, in which he records his discovery that a hypernormally-used muscle is subject to rhythms of inefficiency alternating with corresponding rhythms of recovery of ability to act. I have used the illustrations as to hypernormal muscular action and inefficiency merely by chance: had I spoken of action in any other organ it would have served me as well. I do not change my illustration because I feel that the experiments referred to do not controvert the fact that recognised loss of efficiency goes with recognised increase of weariness-pain. Dr. Lombard's results, as thus far published, do not show that this power of recovery is retained indefinitely, nor has he noted (as he kindly informs me) whether there is a rhythm of loss of pain corresponding with the recovery of power. In fact, I think it will be difficult to obtain satisfactory data on this point, because of the lack of a unit of measure for pain. I may note, further, that I do not claim that the relation of pain to inefficiency is necessarily in the muscle-organ nerves themselves. Personally, I have not confidence, such as most psycho-physicists express, that we are in possession of any very accurate knowledge as to the exact whereabouts of the organ, action in which corresponds to the psychic content in these cases of muscular action. All that I here claim is that the organ which gives the content gives it painfully if the action be inefficient. Perhaps I may hazard a suggestion. It seems clear from Dr. Lombard's experiments that the loss of efficiency is not in the muscle, but in some centre brainward, for the muscles when voluntarily incapable reacted normally to electrical stimuli. Is it not possible that this rhythm of restored power really means the action of a new organ, so to speak? Nerve-centre A may have connexions through nerve-courses B, B¹, B², B³, B⁴ to muscle C. The normal course may be almost altogether through B and very slightly through B¹, B², B³, B⁴; but, destroy the efficiency of B, and given the same energy in A, the course B¹ may open up to full activity and bring again into action the muscle (the power of contraction not having been lost) painlessly so long as B¹ works efficiently, painfully when it acts inefficiently. When it loses its efficiency a new course, B², is opened up, and a new recovery of power obtained.

of the organs which are governed by nervous stimuli, largely separate from the systems reactive to stimuli connected with the emergencies of life: conditions which are constant in time and amount relatively to the intermittent action of the nourished organ, and which, on the other hand, are likely to be disturbed by general derangements of the body which affect their practically separate nervous system.

Now, let us turn to the notion of organic efficiency as related to pleasure. Efficiency, like inefficiency, is an ill-defined notion, and one relative to our experience. We call an action efficient when the outcome of a certain stimulus is *greater* than the outcome which we looked for. Variable as is our experience, still we gain a fairly fixed notion of the action to be expected as the outcome of a given stimulus, and, when the outcome is greater, it becomes the centre of attention with the pleasure which accompanies it. Here, as with pain, there are (1) notable cases where there is an unusual increase in the frequency of recurrence of the stimulus coupled with pleasure-getting. The muscular contractions at the beginning of a vigorous walk are pleasurable.

(2) There are notable cases where the rhythm of stimulation is not abnormal, but the *amount* of stimulus is hypernormal. The commonplace observation, that both pleasant and painful states weary and exhaust the frame, finds its justification in this hypernormality common to the two states. It is to be especially remarked here, however, that hypernormal rhythm and amount of stimulus usually give pleasure only temporarily. Pleasure is evanescent, the quality quickly fades into "indifference" or changes to pain, and the pain of hypernormality, either of rhythm or amount, is very much more permanent. It is at the beginning of the increased rhythm of action or of the unusual degree of activity that the pleasure is obtained.

Again (3), there are many cases in which normal action brings pleasure after an unusually prolonged rest. The muscles which we use every moment of the day, and with indifference, are used with pleasure by the healthy man when he awakes after a good night's rest.¹ Here, as in

¹ It has not seemed necessary to give fuller examples of the connexion between pain and the hypernormal rhythm of action, or hypernormal amount of action in the nerve-organ, nor of the relation of pain to normal action under conditions of debility; for such examples will instantly occur to the reader. I think instances will almost as readily appear in corroboration of the statement that normal action brings pleasure after an unusually prolonged rest.

After the quiet of the night-hours the bird-song, as we awake, is more than usually pleasurable; the rested eye sees beauty in all colours.

the case of pain, the first and second sets of facts lead us to look for some condition of the organ which is relatively con-

The rubbing, at our morning bath, of the skin, which has not during the night felt the normal friction of our clothing; the flavour of some special food to which we have been accustomed, but which has not lately been tasted,—all are pleasurable. The burst of delighted admiration and love for a friend whom we have not seen for a while; the zest with which a student takes up his line of thought, after it has been broken off for days by some necessity,—point in the same direction. In fact, I would not think of cumbering this article with these examples, were it not that Helmholtz, in elucidating his famous theory of discord, makes statements which, at the first glance, seem to deny the fact. It is, to be sure, apart from his subject to describe the nature of pleasure or of pain, but in explaining the phenomenon of discord in terms of aural beats he places the essence of the phenomenon in its painfulness, and brings this painfulness of aural beats into direct relation with the painfulness occasioned in the eye by flickering light. He then states that this painfulness in the eye is occasioned by the frequent repetition of the case where a new stimulation affects an organ which is at rest, which action he states to be painful, basing this position on the fact that the eye finds it painful to pass from a dark room in which it has been for some time into a glare of sunlight—a painfulness which gradually fades away if one remain in the brighter light.

There is no question as to this last fact, and the interpretation which he puts upon it seems also altogether correct, namely, that the whole state of the eye has become accommodated to the low conditions of stimulation obtaining in the dark room, so that the stepping into a glare of light is (as in my view) a case of hypernormal amount of stimulation. The extraordinarily rapid automatic methods of accommodation which obtain in the action of the eye, however, speedily rectify the conditions to enable the eye to act normally under the increased stimulus, and the pain therefore disappears. It is to be noted, however, that this obtains only provided the stronger stimulus is one to which the eye has been accustomed to answer periodically. If it be more excessive, then, accommodation being impossible, the pain does not disappear by continuance of the stimulation. *Now, this argument would be a clear corroboration of my position did he not distinctly speak of the condition of rest in the organ as the basis of the pain, instead of laying emphasis, as he should, upon the condition which, in the case in hand, this rest implies, namely, the rebalancing of the organ to fit it to answer to stimuli of low amplitude only, so that what are not unusually high degrees of stimulus are in fact relatively hypernormal in reference to the organ's condition.* If he had stated his case in this way, and had found it adequate to explain the flickering pain of light as a rapid recurrence of conditions of excessive stimulation, the same explanation would apply to aural flickering. I am not sure, however, that he would think this explanation adequate to cover the ground of the painfulness of flickering in general.

It seems not impossible, on the other hand, to make the explanation of the phenomena in the eye turn upon hypernormal rhythm of action in the organs related to the accommodative process—notably the iris. If this be an adequate explanation of the pain of ocular flickering, it points, in the case of aural flickering (beats), also to an explanation turning upon hypernormal rhythm of action of accommodative organs; and, by the way, is a bit of evidence in favour of the contractile action of the tympanum in such accommodation—to which view some later physiologists are turning.

stant in time and amount, and the third set turns our attention again to systemic conditions. The three together, as in the case of pain, lead us to judge *a priori* that pleasures are involved with the nutritive conditions of the active organ.

We are able, therefore, to make an important preliminary step in laying down this principle:—

All pleasure-pain phenomena are determined by the action in the organs concomitant of the conscious state, as related to the nutritive conditions of the organs at the time of the action.

It appears to me that we have reached here the solution of the second of the general problems which we saw before us at the end of the first part of this article, *viz.*, we have found the basis of that coupling together of all pleasures and pains which is so universal, although these states are acknowledged to be distinctly diverse.

We must now turn to the consideration of the grounds of this diversity. It is apparent, upon observation, that if in any given case the conditions as to action and as to nutrition remain unaltered, the pain in the main tends to increase. If the state be one of pleasure, however, the stability of the same conditions brings about decrease of the pleasure. This points to something *used up* in the case of pleasure, and the fact that there is *something to use up* points to storage. Turning to another point of view, we reach the same result.

As we have already seen, both pleasures and pains are produced at times by action of unusual frequency, and again by action of unusual amount. Mere rest, however, in an organ which is often active will give to normal action a pleasure-quality which would not appear without this abnormal rest. It is also to be noted that it is the early stage of hypernormal rhythm or amount of stimulus which brings pleasure, and evidently rest is here also a condition of importance. The difference between the hypernormality of pain and of pleasure, therefore, seems to turn upon the fact that pleasure is obtained where the organ has been *rested*.

Now, what does this rest imply?

The processes of nerve-nutrition are relatively constant. The regular rhythm of normal pulsation but marks the constancy of the flow of blood through the nutritive channels. Apart from this rhythmic cadence, indeed there are changes in the course of the flow which are very important, but they do not take from the general fact that, relatively to the activities of our expressive life, the nutritive action is constant. Where the action of a nourished nerve is equally

constant, or where its rhythms of action are comparable with those of the blood-supply, the energy used will equal the energy supplied. Where an organ is used irregularly the constant flow continues to bring life to the organ, but there is no regular use of the power gained to correspond with this constancy of income. Under such conditions it will evidently be of the greatest possible advantage to the system to store up in some way this power ready for use when the irregularly coming stimulus calls for action. That there exists such power to store up force, so to speak, to increase potentiality, during the intervals between action whilst the flow of power-giving nourishment remains constant, cannot be doubted. That a race like ours, which is adapted to answer to the most forcible and irregular of stimuli, could have come to exist without such power is hard to conceive. Given these facts, rest in an organ which is sometimes active means storage of energy; and action after rest means the use of stored energy. But, as we have seen, action of an organ after rest gives a psychic content which is pleasurable; hence we have the working hypothesis:—

(1) *Pleasure is experienced whenever the physical action which determines the content involves the use of stored force—the resolution of potential into actual energy; or, in other words, whenever the energy involved in the reaction to a stimulus is greater in amount than the energy of the stimulus*¹

¹ The Peripatetic doctrine seems almost to involve this position indirectly, if one keep clearly in view the notion that pleasure is a *general* quality. The principle has been *incidentally* recognised by many thinkers, but, so far as I know, has not been made a fundamental principle by any psychologist, with one exception to be noted. For instance: Lotze (*op. cit.* 285) recognised that pleasure and pain both turned upon the using-up of capacity, but he referred the difference between the two to a recognition by the soul, whether the organ was or was not going to be able to gain after this over-use a heightened capacity for action, to the general organic advantage or disadvantage.

Horwicz (*op. cit.* iii. 40) recognises the fact that use of surplus force is involved in pleasure-getting, but deals with it as a restoration of equilibrium, which equilibrium is disturbed either above or below the normal where pain exists. Mr. Grant Allen (*Phys. Aesthetics*, 35) tells us that "all strong pleasures result from the escape of stored up potential energy which has been hoarded for a considerable time"; but, for all that, he holds that "pleasure is the concomitant of a *normal* amount of function in sentient tissues". These statements seem to me to be in effect contradictory, and the latter to be in opposition to the principle as to the use of stored force.

Prof. Bain also tells us (*Senses and Intellect*, ch. 4, § 18), "it is known that exercise is pleasurable only when we are expending surplus energy, and thereby making the blood to course through the system more

By a similar course of reasoning, we reach a kindred hypothesis as to pain, thus:—(2) *Pain is experienced whenever the physical action which determines the content is so related to the supply of nutriment that the energy involved in the reaction to the stimulus is less in amount than the energy of the stimulus.*

In general, also, we may say that:—

Pleasure and pain are primitive qualities of psychic states which are determined by the relation between activity and capacity in the organs, the activities of which are concomitants of the psychosis.

Before considering these hypotheses in detail, let us glance at some general considerations.

rapidly". That is, the use of stored force brings pleasure, because it increases the vitality of the organism. Prof. Bain's position is, on the whole, not clear to me. His principles of conservation and of stimulation, far from being complementary, are scarcely co-ordinate. The law of conservation is "teleological" (biologically speaking), deals with the present distribution of pleasures in the race, relates to the genesis of this distribution, but does not strike at the essential nature of pleasure. The law of stimulation, on the other hand, looks towards the essence of pleasure, but not satisfactorily, as we have seen, and Prof. Bain himself holds that it is not in form to cover the whole ground (*ib.* § 23).

Zöllner, however, has stated the position with distinctness (*Kometenbuch*, i. 325, 344, 378). His consideration of the action of material points led him to belief in the universality of sentience (*Empfindung*), for him a much more fundamental fact of observation than is the capacity of matter for movement. From his mechanical consideration, he concluded that, in discussing the relative motion of two material points in relation to the work performed, two cases only are to be considered. Either the points move in the way determined by their resultant effective force, and their *Spannkraft* or potential energy is transformed into living force or energy of motion; or, through the influence of a third body—an outside influence—they move in the opposed sense of force, and then energy of motion is transformed into potential energy. In conscious life this influence is exercised through two sentient (*Empfindungs-*) qualities—pleasure (*Lust*) and displeasure (*Unlust*). And so, he goes on to say, all performance of work of natural beings is determined through pleasure and pain, and the motions so relate themselves as to reduce to a minimum the sum of pains. This theory, put in a few words, is this:—*Pleasure is the psychic side of the transformation of potential energy into living force; pain is the psychic side of the transformation of energy of motion into potential energy.* The formula as to pleasure is that which I have here reached, but it is a mere bald statement of hypothesis without proof; and I may here state that my attention was not attracted to his work until long after my views were complete in my notes. The formula as to pain is entirely unsatisfactory. What I call storage of force he would claim to be painful. But the fact that this condition is often very distinctly pleasurable led to the Platonic theory, which, we have seen, made replenishment the basis of pleasure. What is fatal to this part of the theory, however, is the fact that pain goes with destruction of tissue and loss of efficiency, which is not accounted for by his statement.

The intensity of a psychosis is determined by the amount of activity within the conscious system, of certain elements relative to other activities; so, in somewhat similar manner, pleasure-pain under this theory will be seen to be determined by the amount of activity relative to the capacity of the organ involved. The likeness and unlikeness between the quality *intensity* and the qualities *pleasure-pain* is thus made clear.

The relation of energy received to energy given in any action involves one of three phases:—

Energy received equal to Energy given.

„ „ less than „ „
 „ „ greater than „ „

No other relations of widest generality in this respect are possible, so that we should expect three notable phases of consciousness to correspond with these relations.

The state where energy received and given are exactly equal would *a priori* be looked for only in rare instances; on the other hand, a very close approximation to this equality would be expected in all parts of our nerve-system which are subject to constant stimulus and reaction or to relative regularity of rhythm, of stimulus and reaction where the rhythm is so short that little opportunity for storage of nutrition can occur. These are the conditions which go with the great mass of our constant systemic nerve-actions; and *a priori*, therefore, we should expect to find a corresponding general phase of consciousness, roughly acknowledged as normal, which, however, under careful analysis, would appear of doubtful existence, as a frequently recurring state. Now, just such a mental phase we do find in what is called *Indifference*, which is acknowledged to be general enough to relate to all consciousness. That the mass of systemic psychoses—and, indeed, the greater part of our mental life of no very vivid form—is indifferent is what most men will consider a truism. It is only those who are accustomed to observe the very fine *nuances* of psychic life who find themselves unwilling to rest assured in this respect, and who are disposed to believe that almost if not all consciousness is in some degree coloured with either pleasure or pain, though often in degree too small for distinct recognition.¹

Turning to the two phases of inequality, we see additional reason why two corresponding phases of consciousness should be classed together as one pair of mental experiences, exclusive of all others; further, why, notwithstanding this kinship,

¹ Cp. Sidgwick, *Methods of Ethics*, 4th Ed., p. 125.

they should be exclusive of one another in one and the same mental content. This characteristic of pleasure and pain needs no more than mention.

We have now reached a point where consideration of the pleasures of Rest and Relief and the pains of Obstruction is possible.

In a highly organised system like man's we should naturally look for some such balancing of functioning as will insure capability in the organisation as a whole. If one distinct set of organs should become excessively active we should expect all disconnected functioning to be lessened in amount, for otherwise there would be a very constant risk of reduction of vitality to the danger-point. Such relation of the functioning in disconnected regions is, indeed, a well-recognised physiological fact, in certain cases temporarily producing what approaches to paralysis in other regions than those of excessive activity. The less marked cases are common-places. We have examples in the holding of our breath when our "attention" is strongly called for, in the general muscular quiet which prevails when we are mentally active. In fact, an over-activity must be isolated, as it were, to become noticeable; it is drawn into relief only by the lack of activity of organs adjacent to it. What is more, this is evidently an advantageous tendency which would be conserved by survival. For the adjacent organs being quiescent will not call for much nutriment, and a larger amount than otherwise would be possible can be drawn from the available supply without endangering the system. The general mechanism of this balance is found in the relative constancy of amount of blood in the arterial and venous systems (cp. Mosso's celebrated experiments), so that excessive activity in one direction, calling for a larger amount of blood in that direction, withdraws the normal fulness of blood from other courses, and thus renders ineffective stimuli which would ordinarily produce activity; this failure to function acting as an obstruction to the diffusion of stimuli and of activity throughout regions which would normally be affected. It must be noted, however, that the reduction of the blood-supply does not mean its cessation. There comes into play what may be called a species of *nutritive momentum*. If the blood-supply continue in its less full flow, normal activity being prevented by failure of diffused stimuli, then we have the condition which we have seen brings about storage of force. This storage of force will take place, be it noted, in those regions which are determined to activity by diffused stimuli which are in such cases cut off by the failure in

functioning of some more distinct activity. The more excessive the initial activity, the more important will be the organ which fails to react, and, therefore, the wider will be the region of inhibition through lack of normally conducted stimuli, and the wider will be the region of diffused storage of force. Now, suppose the excessive initial activity to cease: then the inhibited stimulus will again come into play; the diffused stimuli will act, and upon organs which are ready to deliver over stored energy. That is, in such conditions we shall have, in widely diffused systemic regions, activities involving the use of stored force, and the width of this use of stored force will be determined in a direct ratio by the relative intensity of the initial excessive activity. It follows also that, if activity which is normal be caused to cease artificially, every other connected organ which is active will receive a larger than normal blood-supply, and, therefore, will in some small degree show the condition in which stored force is used.

Now, let us turn to the psychological interpretation of these physiological phenomena.

Attention, whatever else it mean, surely involves loss of balance of psychic functioning. Excessive attention, whether voluntary or involuntary, whether caused from within or from without, means excessive psychic action in one direction and a consequent loss of activity in other directions. That is, it fulfils the psychic conditions which we have seen on the physiological side to involve the storage of force in diffused regions. The cessation of this excessive attention, therefore, involves, as we have seen, action in diffused regions with use of stored force. Now, here we have, it seems to me, dimly outlined what will probably be found to be an adequate explanation of the pleasures of Rest and of Relief, in terms of pleasure as determined by *activity with the use of stored force*. The reader needs but to be reminded of the diffused nature of the pleasure which, be it noted, *always* comes with rest from toil or from mental or physical strain; in other words, relief from attention voluntary or involuntary. The more pointed the attention—the more this attention tends to be painful—the wider and fuller is the feeling of delight at the relief from the excessive activity. The final step above made in considering the physiological view, when interpreted psychologically, gives us what appears to be an adequate explanation of the pleasure connected with artificial rest: the delight connected with the relief of muscular strain, which we feel when we throw ourselves into a supporting medium like water; the pleasures of

letting ourselves be led and guided in thought as in our physical environment.

As corroborative of this view, it may be noted that any hypernormal action which is truly spread over the whole system fails to give the pleasure of rest after its cessation. The painful conditions of hysteria and all other cases of general nervous activity, so-called "nervousness," give us general painfulness and exhaustion, an impossibility of rest, and no pleasure in the enforced quiet which exhaustion brings.¹

Returning to the physiological view, what happens when a normal activity is obstructed as the result of contradictory forces or failure of stimuli, but without radical change of nutritive supply? All the connected organs will, it would seem, take up into potential form all the energy they are able to store. But after that? If the blood-currents still persist without use of the material which they carry with them for the organ, they will fail to move on in their course with normal ease; the nutritive channels will become gorged, their muscular coatings and their proper nerves forced to do abnormal work under conditions of excess and beyond the limits of storage. In the regions of fine capillary division amidst delicate tissue, as in the region of the brain, the very slightest obstruction may be expected to produce a relatively large effect in the direction of this diffused excessive work. When the obstruction is removed, however, the return to activity must involve work of organs which are well nourished, and must, therefore, result in the use of stored force.

Now, these physiological considerations would lead us to look for exactly what we find, *viz.*, pain of a diffused kind resulting from the obstruction of a normal activity or of any flow of activity: the well-known pain of obstruction, of hindered activity. They also lead us to look for pleasure of a widely-diffused kind in connexion with removal of obstructions and return to normal activity, and this we clearly do find. I shall not stop to illustrate this, for we shall find frequent occasion to recur to it from time to time in what follows. It is worth while, however, to note here that the wide regions of activity involved in these phases of pleasure in rest and pain in obstruction will render these states in general unlocalisable and disconnected from clear

¹ Oftentimes through the enjoyment of rest we may still feel the rhythmic throb of lessened pain from the part which has lately been doing such over-service, and this helps to show that the rest-pleasure is in different parts from those in which the active pain had appeared.

and distinct contents. It is this which leads to the somewhat popular division of pleasures and pains into acute and massive; for the latter comes into prominence rather through the summation of a large number of elements of low degree than by any special fulness in any direction.

It becomes evident now why it is that we practically take cognisance of five phases as to pleasure and pain, although, in fact, the five are reducible to three. We have:—

(1a) The pleasures of activity involving the use of stored force in the organ determining the content.

(1b) The pleasures of relief, of rest, which are reducible to (1a); but which depend upon activities apart from the content which had been emphatic before the relief or rest.

(2) The state of indifference.

(3a) The pains of hypernormal activity.

(3b) The pains of obstruction, reducible to (3a), in a manner similar to that shown above for pleasures of rest and relief. As we shall presently see, phases (1b) and (3b) need not be taken into account when we come to trace the laws above stated; and this, I think, justifies the digression we have made.

In bringing this article to a close, I wish to emphasise the fact that I find the greatest interest in this theory because it corroborates the position elsewhere defended, to which I have more than once recurred, *viz.*, that Pleasure and Pain are to be classified as general qualities which *may* come into consciousness with any content. I have argued (MIND No. 56) on purely psychological grounds, from an examination of the positions directly and indirectly expressed by thinkers, that Pleasure-pain cannot be classed with Sensation, nor with Emotion, nor with Intellect, nor with Will, but from the evidence before us must be thought of as bearing relations to all these classes of mental phenomena. This, our psycho-physical theory, would tell us also; for a form of consciousness which is determined by relations which govern all nervous activity clearly cannot be classed with some special mode of this activity, but must be related to all modes in which consciousness presents itself. I further argued that there are three positions which can be taken from a psychological standpoint:—(1) Pleasure-pain modes may be the fundamental—the original—elements, the basis of all psychic life from which all else of consciousness may be held to arise by development or transformation. This I found to be not upheld by evidence, and the present view would show that conditions so general as those which are the basis of pleasure-pain could not by differentiation, limitation, or combination

develop the conditions of consciousness as we know it. (2) Another position which can be taken was shown to be this: that pleasure and pain are phenomena *sui generis*, expressive of the action of the soul apart from all cognition but brought into existence by all kinds of presentation. This widely-accepted and authoritative view I failed to accept for many reasons, and we see under this theory no reason why we should fall back upon the notion of a kind of mind-activity to appreciate pleasure-pain other than that by which all the rest of mental life is grasped. Intensity, attention (inclusive of inattention, as Dr. J. Ward has it), are general qualities which *must* belong to *all* psychoses. Pleasure, pain, or indifference, as viewed from this psycho-physic standpoint, are qualities one of which must, and in general any one of which *may*, belong to each psychosis. There seems no reason why we should need to postulate a different soul-aspect to take account of these phenomena. (3) On the other hand, there is every reason to judge that all the psychological facts will be covered by the view which I have just expressed, and to which we are forced, it appears to me, by both psychological and psycho-physical argument.

I must now turn to a closer examination of the psycho-physical theory already broached, which has gained new interest from the correspondence just noted. I do so, however, knowing full well the danger which lies in the expression of theory which is not subjected to the test of refined experiment. No one can look over the ruins of complex theories, which in the past have been reared up to account for the physical basis of the operations of mental life, without feeling that our conceptions of the nervous basis of consciousness will be subject to radical change as time gives us more exact data. Whilst, therefore, I have above expressed, and am willing further to express, my notion of the basis of pleasure-pain in terms of the conceptions which our time holds with fair clearness, I do not feel certain that later on much of what I say may not appear as erroneous in form. I shall be satisfied if I am able to bring my readers to believe that the physical concomitants of pleasure-pain phenomena are to be found in general qualities common to all processes which are at the basis of our conscious life; and that this is corroborated by introspective analysis of pleasures and pains.

(To be concluded.)

III.—SCHOPENHAUER'S CRITICISM OF KANT.

By WILLIAM CALDWELL.

WHAT I wish to attempt in this paper is to sift out anything that may seem to be valuable in Schopenhauer's criticism of the Kantian philosophy. It is matter of common agreement that the place of a post-Kantian philosopher in the history of philosophy may be more or less determined by his attitude towards Kant, but my object here is less to explain Schopenhauer through his opinions on Kant than Kantism through Schopenhauer, although it is difficult in seeking to do even this much to forget that Schopenhauer claimed to be Kant's only true successor in philosophy.

It is important to remember that Schopenhauer's first philosophical essay appeared (1813) only seven years after Hegel's *Phaenomenologie des Geistes*, and his chief work (*Die Welt als Wille, &c.*, 1819) one year after Hegel had begun his influential lectures at Berlin. Schopenhauer, in fact, was born just a little too late to have actually felt the fever of the philosophical agitation which fell between 1795, the year of the appearance of Fichte's *Wissenschaftslehre*, and 1804, when Hegel diverged from Fichte and Schelling into a line of thought of his own, ending in the publication of his *Phaenomenologie*. His first instructor in philosophy was G. E. Schulze, the sceptical critic of Kant, from whom, perhaps, he may have partly imbibed that somewhat superficial view of the Kantian philosophy prevalent among its earliest critics and upholders as mainly a new species of Idealism with an inconsequent Dogmatism in the theory of the Thing-in-itself; and his first formal introduction to the speculative movement of the first decade of this century was through the lectures of Fichte, which he heard when he was twenty-three years of age at Berlin in 1811—the *Wissenschaftslehre* appearing to him, as he wickedly put it, "*Wissenschaftsleere*," and Hegel's philosophy "a monstrous application of the ontological proof". This is more than enough to create in many minds a profound initial prejudice against Schopenhauer; but when for some years there has been an interest in the other of the two nineteenth-century philosophers who stand out in a sense from the wide stream of thought whose flood was Hegel's system—I mean Herbart

—it is not unnatural to seek to turn up the theoretic side of the roots of Schopenhauer's philosophy.

1. Schopenhauer was half made by Kant; the web of his philosophy is through and through Kantism, and again and again throughout his writings do we find such distinctively Kantian topics as the Thing-in-itself, Knowledge *a priori*, Idealism, Noumenal, Freedom, &c., discussed *in extenso* as integral parts of his own system. He has written, further, an explicit "Criticism of the Kantian Philosophy," as at once an appendix and necessary introduction to his chief work; and in the *Parerga and Paralipomena* we find a concise and eminently readable section called *Noch Einige Erläuterungen zur Kantischen Philosophie*. His point of departure in considering Kant's work is, in a word, the first part of Kant's *K. d. r. V.*, the "Æsthetic"; and he prefers to get access to Kant through the first edition of the *K. d. r. V.*, where Kant's Idealism is stated more unreservedly and more at a stroke than in the second edition. It is his conviction, he says, to which he was forced after years of repeated study of Kant, that Kant's only real discovery was that Space and Time were known by us *a priori*; and that, gratified by this, he wished to pursue the same vein of thought further, his love of architectural symmetry affording him the clue. The only element of value Schopenhauer finds in the "Analytic" is the principle of Causality, of which he thinks Kant might have given a much simpler account; all else is to him mere confusion and superfluity. The "Dialectic" represented to him the negative side of the Critical Philosophy, which he accepts as a perfectly conclusive piece of work, although he does not believe that the antinomies exhibit a natural dialectic of the reason, or that the three ideas of Kant are at all on the same level; here too, also, he thought Kant might have proved his case much more simply. With these views we are not surprised to hear Schopenhauer calling the *Prolegomena* the most beautiful and comprehensible of all Kant's writings. In Ethics he believes Kant to have rendered the immortal service of showing, in "quite a special way" (that is, by his attribution of a noumenal freedom to man, compensating for his phenomenal necessary determination), "that the kingdom of virtue is not of this world," although the *K. d. prakt. V.* is only an application to Ethics of the principles already reached in the sphere of the Pure Reason. The *K. d. Urtheilskraft* he finds to contain the characteristic defect of Kant's whole Philosophy—the starting from indirect

instead of direct knowledge; in this case, the starting from the Judgment of the Beautiful instead of from the perception of the same. Lastly, the criticism of the Teleological Judgment only shows what the *K. d. r. V.* already showed—to wit, the subjectivity of what we may call the ontological categories: Teleology commits the egregious error of first treating the world of things as a world of things-in-themselves and then of applying categories (which are subjective) to their determination.

Schopenhauer's *Æsthetic* has its roots in Plato; Plato's doctrine of Ideas constitutes the other half of Schopenhauer's philosophy—the woof, in fact, of which Kant's theory of the forms and matter of Knowledge may be said to constitute the web. His criticism, therefore, of the first half of Kant's *K. d. Urtheilskraft*, in so far as it may be regarded as an outcome of his Platonism, does not concern me here. His criticism of the *K. d. prakt. V.* is too directly connected with his own philosophy to be entered upon summarily. I proceed, therefore, to unfold critically Schopenhauer's general characterisation of the subject-matter of Kant's philosophy, and shall thereafter examine in its light, in order, the "*Æsthetic*," the "*Analytic*," the "*Dialectic*," and the chief discovery of the *K. d. r. V.*

2. The chief tendency of the Kantian philosophy, according to Schopenhauer, is to establish "the total diversity of the real and the ideal". The Ideal, Schopenhauer explains,¹ is the "visible, spatial appearance with the qualities that are perceived on it; the Real, on the contrary, is the thing-in-and-for-itself, independent of its being presented in the head of another or of itself". Kant's greatest service is to have separated the phenomenal from the thing-in-itself by proving that between us and things there always stands the intellect. Kant's Copernican discovery is aptly hit off by Schopenhauer in the words:² "Before Kant we were in Time; now Time is in us," and so on. It is obvious from this that Schopenhauer accepts the negative consequences of Kant's philosophy as well as the positive; we cannot know the thing-in-itself, because, as Kant showed, the laws which govern the phenomenon cannot be used to deduce and explain existence itself. Kant's defect is that he could not discover the thing-in-itself. Schopenhauer does not attempt a criticism of the notion of the thing-in-itself; the thing-in-itself is to him the reality underlying and determining the world of experience, and, as such, a real and not a hypothetical entity. He never

¹ *Werke* (1888), v. 91.

² *Ib.* i. 502.

allows himself to speak of it in the plural, as Kant does, and so keeps consistently to a monistic point of view. The recognition of the thing-in-itself is part of Kant's great service to philosophy, and Schopenhauer denounces in the strongest terms the attempt of Fichte to set up a philosophy without the thing-in-itself, and also the attempt of Schelling in the *Identitätsphilosophie* to fuse together the Ideal and the Real after Kant's express separation of the two. "Certainly in no way," he says, "is the assumption of a thing-in-itself behind appearances, of a real kernel among so many husks, untrue; indeed, the denial of it would be absurd; only the way in which Kant introduced such a thing-in-itself and sought to reconcile it with his philosophy was faulty." The latter part of this sentence is more important for our purpose than the former. It concerns Kant's method, against which Schopenhauer directs the full force of his criticism.

A few words on this general statement of Kant's work. The tendency of Kant's philosophy is generally confessed to be twofold: to vindicate or to justify knowledge, and to limit knowledge. Schopenhauer's representation refers more to the second point than the first, and may broadly be said to be true of it: Kant did say and show that we have no knowledge of things-in-themselves, and he in a public statement repudiated the proposal of Fichte to dispense with the function of the thing-in-itself—merely limitative though it was. The Idealism of Kant, Schopenhauer ought to have remembered, was a means to an end, *viz.*, the justification of knowledge: we were enabled to predicate necessary connexion of the elements of experience, because the forms of knowledge (and also the affections of sense) were subjective. Thus it can hardly be said that Schopenhauer has stated fully the drift of Kant's philosophy. It is important, of course, to have the negative side of the *K. d. r. V.* emphasised as Schopenhauer did, because it may incline us to seek another proof of the entities which are disposed of in the "Dialectic"; only, the whole force of the negative side of the *K. d. r. V.*, and consequently of any philosophy which is built upon it, would be nullified if it could be shown that the thing-in-itself is not an integral part of the Critical Philosophy; that, in particular, the limitation of knowledge to experience can be stated in a way which does not involve the idea of a thing-in-itself. Now, I think it can be shown that the thing-in-itself is not an integral part of Kant's system in the way in which Schopenhauer thought it was—a sort of substrate bodying reality into the phenomenal world—though still an element

incidental to the system for another reason. What this other reason is seems to me to come, not out of Schopenhauer's solution of the thing-in-itself, as we might perhaps expect, but out of his criticism of the method in which he says Kant sought the thing-in-itself. I pass, then, to what Schopenhauer says about Kant's method, as more important for my present purpose than his opinions on the actual results of Kant. Only, we will remember that from the "Æsthetic" of the *K. d. r. V.* Schopenhauer learns Idealism—Subjective Idealism; it was only natural, therefore, that he should wish for a thing-in-itself whereby to pull himself out of this partial philosophy.

3. The fundamental principle of Kant's method Schopenhauer takes to be the starting from indirect reflective knowledge: Philosophy is for Kant a science *of* conceptions, while for himself it is a science *in* conceptions. By this he means that Kant found in conceptions the subject-matter of philosophy, while he found in conceptions only the form of philosophy—philosophy being a conceptualised or *generalised* statement of the matter of our knowledge. The path which was followed by Kant, starting from the point of view of abstract knowledge, to find the elements and inmost spring of intuitive knowledge also, was quite a wrong one. This is Schopenhauer's first charge against Kant; his second is that Kant had this fundamental principle of his method only very imperfectly present to his mind, and that consequently we have to arrive at it only by conjecture even after a thorough study of his philosophy. This is really more a limitation of the first charge than a withdrawal of it, as it seems at first sight to be; all students, indeed, of Kant have found it difficult to adopt definitely and persistently one line of interpretation. The importance of Schopenhauer's main charge, however, interests one more than its partial truth or error. In the preface to the first edition of the *K. d. r. V.* Kant says that it is his task to answer the question how far Reason¹ can go without the material presented and the aid furnished by experience. In the essay *Von dem Ersten Grunde des Unterschieds der Gegenden im Raume* he calls space a primal *conception* (*Grundbegriff*).² Kant, that is, does seem to think he can start from certain formal or abstract conceptions yielded to him by an abstract analysis of our representations, and his question is about the value such *abstracta* have for knowledge. In the *K. d. r. V.* he talks of the categories as the pure conceptions of

¹ *Werke* (Hartenstein), ii. 67. ² *Ib.* iii. 122.

the understanding which make knowledge possible: "If I take away all thought" (through the categories), he says, "from empirical knowledge, there remains absolutely no knowledge of an object, for through mere perceptions nothing at all is thought,"—a sentence which, according to Schopenhauer, contains all Kant's errors in a nutshell. Kant accordingly looked away from perception, and, regarding knowledge from the side of abstract conceptions, hinted that an *intuitus originarius*, an intelligence which could supply from within itself the empirical matter to fill its conceptions, would be a complete explanation of knowledge; only, as he did not believe we could put ourselves at the point of view of such an intelligence, he refused to use an absolute subject in his philosophy, and declared Fichte's use of such an hypothesis to be contrary to the spirit of the Critical Philosophy. Equally little, he held, could we know an absolute object, for, from the side of perception, an object must be conditioned by our faculties, in order that we may know it. Kant was, therefore, left with the thing-in-itself. What Schopenhauer says about this is, that Kant sought the thing-in-itself—sought the ultimate explanation of experience in the abstractions of knowledge—sought to construct a philosophy out of pure conceptions, and that, just because he adopted this path of procedure, he failed to solve the problem of philosophy, in having the thing-in-itself left on his hands. The very fact that Kant was left with the thing-in-itself—with a surd, say—proved to Schopenhauer that the path of abstract reflexion was closed as the path of philosophy. Others in his day were, he thought, professing to go further on such a path ['Don't know the thing-in-itself!'] says Hegel; 'on the contrary, there is nothing we know so easily!'], and Schopenhauer absolutely refused to credit any of their results with even the possibility of truth because he believed the path they followed to be "in the air". Schelling, instead of saying that he knew God by "intellectual intuition," would have done better by the public if he had said he had found a new deity; for, in truth, the deity of the post-Kantians generally is altogether different from the deity dismissed from the courts of knowledge by the *Aufklärung*.

Kant's actual problem in the *K. d. r. V.* is an answer to the inquiry whether Metaphysic as a science is possible. By Metaphysic he meant, as he tells us in the *Prolegomena*, not physical knowledge, but knowledge beyond experience, the source and principles of that knowledge never being de-

¹ *Ib.* ii. 82.

rived from experience, but from the pure understanding and the pure reason. The possible analogy of Philosophy to Mathematics was a wonted and a favourite one with Kant: each seemed to be based on conceptions; only Mathematics had the advantage of constructing its own conceptions, and of constituting itself a science. Could the mental tendency (*metaphysica naturalis*) to the creation of a body of real speculative truth be justified? To settle this question, Kant proposed to himself a preliminary *K. d. r. V.*, to find out if there were any valid pure conceptions in the mind (he had already reason to believe there were), and, if so, what they were: that is, Kant hoped to settle his ulterior question by showing the *a priori* knowledge that the mind could legitimately lay claim to. It is important, as Prof. Caird in his great book insists, and also Prof. Riehl (though of course with a very different ulterior aim) in his *Philosophischer Kriticismus*, to associate the definite problem of the *K. d. r. V.* with the general problem that lay behind it in Kant's mind. We know the solution of the *K. d. r. V.* Categorically, it is a negative one: there is no knowledge out of mere conceptions: we have, it is true, certain pure forms and conceptions in our mind, but these refer only to sense-experience, which, *at least*, we do not make (but have to wait for). The table of the pure conceptions of the understanding with its appendages, and the judgment as the key to knowledge, measure Kant's positive contribution to philosophy. The theory of the *K. d. r. V.*, as Riehl remarks, is, before all things, a logic. Schopenhauer practically understands this, because he makes out the *K. d. r. V.* to be concerned chiefly with conceptions or logical entities. He would grant, too, that the method of Kant can be traced even in the "*Æsthetic*," which he praises so highly.

But where do these pure conceptions come from? Conceptions, it is evident, must reside in a mind; consequently, we have Kant's doctrine of the transcendental unity of self-consciousness. Here at once a difficulty arises, and from here radiate different lines of interpretation of Kant. Is the self-consciousness Kant speaks of, the psychological subject? Then Schopenhauer, for example, tells Kant that there is experience without the functions of thought. Further, if the categories are supplied by the knowing subject to experience, they cannot be regarded, except by some artificial hypothesis or other, as *real* determinations of things. If, on the other hand, the self-consciousness is the metaphysical subject (as with Green, say), the subject in general corresponding to the object in general, then Kant has

simply shown, only in an infinitely more penetrating way than Berkeley did, that the object implies a subject. He here opened the door to the speculations of Fichte, who ran off with this transcendental subject and made it God; and to Hegel, who treats the categories as, therefore, objective *conceptions*. Besides, to say that the world, as object, implies a subject, is only a particular way of stating the general truth that one term of a relation implies the other; difference implies identity, analysis synthesis, and so on. But this kind of analysis is no real explanation of anything; it shows, it is true, how Dogmatic Realism is impossible, because one kind of dogmatism—say, a belief only in the object—can be met by a counter dogmatism, Subjective Idealism. The theorist who isolates a relation out of the concrete whole of fact may by dialectic skill show how he is compelled in thought to pass through an infinitude of other abstract relations to correct his first abstraction. In so doing, he shows, indeed, the connective and connected character of the tissue of the world, whatever that is, but he is eclipsed in speculative daring by the pantheist with his movable indifference-point (the *quatenus consideratur* of Spinoza) as the centre of the world, and his negation of all difference and relation. Hegel might have begun the *Logic* with any one category instead of Pure Being—Identity and Difference say, which Plato inclines to regard as the highest abstracta of Thought—and deduced therefrom all the others.

But, surrendering the question of the *source* of the categories, let us simply take them as the discovery of the *K. d. r. V.*, and concern ourselves more with what they are than where they come from; for in settling this we shall settle the question of origin or source. Schopenhauer, in contending against the abstract conception of Kant, helps to disentangle the veil of confusion that has been thrown over the nature of knowledge by the assimilation with Kant himself of the categories to conceptions. The main drift of his criticism, that is, strikes at the very roots of Kant's idea of Metaphysic as the Science of First Principles, and raises a question prior to Kant's most general one. Kant asked himself whether a Science out of conceptions was possible. Schopenhauer bids us pause before the question, with the prior one—What sort of knowledge we could expect to find out of, or in and through, mere conceptions—and to look at the nature of some of Kant's pure conceptions. How does his charge apply to the different main sections of the *K. d. r. V.*?

4. While we may agree with Schopenhauer that the "Æsthetic" is enough to immortalise the name of Kant, we distinctly demur to its being called Kant's only discovery. Kant professes to have been awakened from his dogmatic slumber by Hume, and, as Hume's main difficulty was in reference to Causality, it is evident that the discovery of the *a priori* character of Causality—and, in fact, of the systematic table of the Categories—must have been at least as important to Kant himself as his earlier discovery (probably as early as 1768) about Space and Time. Still, the way in which he thought of Space and Time as *a priori* wholes probably had some influence over his statement of the Categories. I seem to find in the "Æsthetic" the same tendency to abstraction, to conceptual abstraction, that strikes Schopenhauer so specially in the case of the "Analytic," with its Deduction of the Categories. The point of the "Æsthetic" is, therefore, of extreme importance. It is somewhat difficult, of course, to represent Kant's meaning. We saw above that in one place he called Space a fundamental *conception*: in the *K. d. r. V.* he tends to call it a pure perception or intuition. This vacillation is inevitable and well-grounded; for, strictly, space is neither a pure conception nor a pure perception, although it is partly conceptual and partly perceptual. Space is not a concept; for, though the space we think of is one whole—a sphere, as Kant pointed out—the space we see, on the contrary, is not *one* whole, for we cannot talk of seeing *one* anything when there is not the possibility of seeing two. Space is not a percept; for we never see space-extension apart from, say, mass-extension, coloured extension, and so on. Thus we may deny that space is a *thing* either in our heads or out of them. It is a *form*—that is, an abstract-percept; it cannot be located anywhere: by space we mean spatial extension. Kant's space is, on the whole, the space of conception, one whole sphere—that is, a fiction of thought or conception. So far from making knowledge possible, this sort of space makes it impossible; for, if we allow ourselves to make, in conception, the forms of experience into things-in-themselves or absolute entities, we introduce several universes for consideration instead of one. Schopenhauer, for example, took Kant's space as he found it, and got himself inclosed in it without being able to find, logically, a way out of it; and, truly, if space is in my head, there is no way of getting out of my head: the world is, from first to last, a *Hirn-gepenst*. The speculations of Transcendental Geometry, too, are based on the same erroneous and impossible view of space as a thing

complete in itself; they are, in fact, of a piece with dogmatical Physical Realism in general, which Kant—as his lasting contribution to the sum of human knowledge—completely destroyed. Unfortunately, Kant, in destroying Physical Realism, fell himself into the Scylla of Idealistic Realism or Dogmatic Idealism. Kant practically tells the Physical Realist that in his atoms, and his void, and so on, he is manipulating so many mental fictions: only, it is utterly erroneous to think that after Kant there existed, wherever appropriate, a metaphysical idea or conception, in place of the physical entity of the scientist. The Idealist is guilty of making abstractions just as much as the Dogmatic Realist is—and, perhaps, he is more to blame; he, too, like the Realist, peoples the world with things-in-themselves—a species of Epicurean gods, that may be safely left to enjoy the serenity of their repose beyond the *moenia mundi*. I am not here seeking to use again Locke's argument against innate or *a priori* principles, although I do think with Schopenhauer that, say, Fichte and Schelling, in interpreting Kant generally, again and again speak as if Locke had never written. I only wish to protest against the categories being taken to be conceptions or pure conceptions (which enter into experience to condition it): Kant, that is, has not described the space of real perception, but the space of abstraction—pure space, which is pure nothing.

5. It is of the "Logic" of the *K. d. r. V.* that Schopenhauer's criticism is materially and formally most radical. Let me outline his positions. He gives a different account of the functions of the soul, rejecting altogether the faculty-distinctions of Kant: he associates Kant's faculty of Understanding more with Sense and the category of Cause with the spatio-temporal or perceptual construction of the world, and holds the other eleven categories to be mere blind windows put into a scheme through Kant's love of symmetry; and, secondly, he holds Kant's account of Reason to be utterly false, and substitutes his own doctrine of the thing-in-itself for Kant's three Ideas of Reason. As to the faculty-psychology of Kant, few people, of course, will now seek to defend that. Schopenhauer did not wage war against the faculty-psychology as such, as Herbart did; still we may regard his reduction of all the faculties to manifestations of one supreme mental fact as a step in that direction, to be associated with Herbart's reduction of mental processes to *Vorstellungen* and the relations of *Vorstellungen*. [The *Four-Fold Root* and the *Lehrbuch* appeared in the same year, 1813.] Schopenhauer, for example, in the *Four-Fold Root* talks of Understanding and Reason

and Sensibility as "subjective correlates" of certain "representations". [The words appear to have been in the first edition.] Of course, he takes the ordinary licence of speaking of soul-functions under separate names. The Understanding with him is concerned, not in thinking, but solely in the spatio-temporal construction of the world as an object of Perception, and is common to man and the brutes; its chief function is not that of working the "complicated machinery" of the twelve categories, but simply of projecting and disposing the data of the senses into the causal temporo-spatial order; Causality is its only category. The faculty which thinks objects is Reason, the faculty of conceptions. One or two observations on this account of Understanding:—

(a) It seems of distinct advantage to have sense-experience marked off from reflective knowledge, as in Schopenhauer's rigid separation of perceptual and reflective knowledge. It is not easy to figure clearly what Schopenhauer meant by Understanding; its equivalent in the *K. d. r. V.* would probably be the Synthesis of Imagination, a schematic construction of the data of perception into an objective order. It is assigned by him to animals as well as men, because they too have a perceptual knowledge of the world, and must, therefore, be credited with the synthetic co-ordination of the data of sense which this implies. Thus he helps to bring out the fact that Kant's Synthetical Unity of Apperception is not necessarily a distinctly intellectual operation, but, in the first instance, simply a general co-ordination of the elements of sense-experience in relation to the unity of the psychological subject. One does not know whether Kant thought animals equal to the 'I think' of his Apperception, but one can hardly imagine him denying to them a perceptual knowledge, which latter is certainly possible without conceptions. The 'I think,' in short, of Reflexion is a higher mental fact than the synthetic apprehension of the data of sense or organic experience; animals, for example, certainly have the latter, but evidently not the former. The associative synthesis of their experiences common to all percipient beings is the co-ordination of the elements of an organic movement-series with the elements of sensory affection. This is what Schopenhauer at bottom meant by the spatio-temporal construction of the data of experience effected by the action of the Understanding on Sense.

(b) By calling this synthesis the work of the Understanding, Schopenhauer may seem to be either unduly intellectualising Perception—a thing he objects to in Kant—or to

be degrading Understanding in making it subservient to Perception. As to intellectualising Perception, he might justify his use of the word Understanding by maintaining that we have no reason for restricting it to denote merely the conscious co-ordination and segregation of the data of experience to the exclusion of the unconscious process of relation which must have preceded it; and, as to degrading Understanding, he might contend that the degree of Understanding a being has will be found to be in the end just that degree which is necessary and adequate to the performance of its life-preserving and life-furthering functions. Kant, it is true, has distinguished three aspects of his Synthesis, and his distinction is of value. In pointing out, first, the synthesis of Apprehension, which is simply the combination into one whole of the successive elements of Perception; and, secondly, the synthesis of Imagination, which is association by means of a schematic or productive act on the part of the knowing subject; and, thirdly, the intellectual synthesis of Apperception, which is unification in relation to a self-consciousness,—Kant may be held to have distinguished three stages of the development of psychical life, which may be exemplified in different percipient beings. Kantians are sometimes anxious to save their master from the apparent inconsistency of admitting an empirical synthesis (in the much-disputed example of seeing the parts of a house) to be possible apart from the functioning of the categories and the self, from the danger of allowing nature to be possible apart from intelligence: such an apprehension, however, is groundless, for the dependence of the object upon the subject does not stand or fall with the position that experience is only possible through transcendental apperception. It might be urged, of course, that the end of experience is implied in the beginning, but this is going into teleology, which I want here to avoid.

(c) Another fault in Schopenhauer's use of the word Understanding is that he does not allow in his explanation for its close connexion with what he calls Reason. In his anxiety to put Reason and Perception on two different planes of experience, he has not seen the connexion of the Reason that is latent in Sense (according to himself even) with the fully developed or conscious Reason which proceeds from first to last in and through abstract conceptions. Understanding is really a middle stage of knowing between Sense and Reason: it begins in detecting the connexions among the elements of Perception, and ends by being able to figure these connexions abstractly. Schopenhauer restricts

Understanding too closely to Sense-perception; Kant, on the contrary, to Reason. To Kant knowledge must be rational, or it is almost not worth the name of knowledge; while to Schopenhauer rational knowledge is only a very small part of experience, intuitive knowledge being a much greater part. That is, while there would seem to be degrees in the extent to which a psychological subject is able to discriminate, and effect a redistribution of, the elements constituting its experience, Kant tends to see only the upper limit of knowledge, Schopenhauer the lower. It is true that Kant in the *K. d. r. V.* says, for example, that "mere intuition does not stand in any need of the functions of thought"—categories, say—a sentence which is often explained away on the ground that Kant, overcome by the weight of the old dogmatism which he had really destroyed, occasionally 'nods'. Schopenhauer must have seen many such utterances in Kant, and so added the restricting clause to his charge. But if the categories are not to be retained for perception as "functions of *thought*" or pure conceptions, we must simply find a better name for the categories that are undoubtedly implied in Perception.

What Schopenhauer rejects, then, in the "Analytic" is the assertion that without thought Perception is impossible, and that conceptions alone make knowledge possible. He regards the Transcendental Deduction of the Categories as an attempt to find the last elements of reality in conceptions. Eleven of the categories he declares to be useless. The Principles of the Understanding he does not in so many words reject as formal or schematic principles of knowledge, and we must regard his table of *Predicabilia a priori* with the table of *Metalogical Judgments* as in some sense a substitute. H. Cohen in his *Kant's Theorie der Erfahrung* charges Schopenhauer with a gross misapprehension of the purpose of the Deduction, in forgetting or not seeing that what Kant really teaches is that both the *a priori* of Sense and the *a priori* of Understanding are necessary to constitute experience, and that these two things must be taken together. I cannot exactly see that Schopenhauer proceeds in the teeth of this truth; for, granting it, it is still desirable to have the *a priori* of Sense marked off from the *a priori* of Thought, and Schopenhauer's polemic against the Categories as conceptions is a negative step to the ascertainment of what the Categories really are. It is strictly not true that the 'I think' and the pure conceptions of thought are necessary to the possibility of experience. Kant is right in pointing out the synthetical unification that the subject

makes of its representations, but his logical unity is only one typical form of synthetic "conjunction of the manifold".

6. By Reason Schopenhauer means the power the mind has of forming general conceptions and of knowing by way of conception or idea, the matter for conceptions and ideas being of course derived from Perception. To say that Reason brings anything to experience that it has not already received from experience is to him simply a remnant of Medievalism which contradicts fact, and he often in this connexion speaks with approval of Locke's criticism of innate ideas and of Hume's *History of Natural Religion*. The simplicity of this is the simplicity of fact. Schopenhauer rejects altogether, therefore, Kant's conception of Reason as the faculty for seeking and knowing the unconditioned; when Kant says that Reason demands the completion of a series of conditions, Schopenhauer denies that the mind seeks anything more than the next condition—the condition of this condition—the next or the prior cause, for example. It seems too, if we reflect, that it is the Understanding which investigates the relations of the world and not the Reason. Reason is really only a second way of knowing, a power of knowing by way of idea instead of by percept. Reason is the power we have, through abstraction, of regarding the sphere of being from any one point of the perceptual field as centre. Reasoned knowledge is an abstraction from perceived knowledge, and all knowledge, as Schopenhauer says, is originally and in itself perceptive: conceptions cannot be the root of reality, for out of conceptions nothing but conceptions follow. Kant's "Dialectic," showed conclusively that from ideas we could never prove things. Schopenhauer turned then from the 'Indirect' or Reflective Method to the Direct or Perceptual Method; only, in doing so, he forgot that it is impossible to see the whole of the world, that the world can only be perceived in sections, as it were, which Reason or Abstraction can help us to make. He forgot, that is, to think of the necessary relation of Perception to Conception, and in consequence of this he afterwards made the mistake of taking that side of the world which he saw for the whole world. Although it is true that conceptions do not make Perception possible, in that the entities of conception are not real ultimate things, it is still true that through Reason we are enabled to focus Perception. I wish to follow out the consequences of the view that the validity of conceptions must be vindicated by perceptions. Kant, of course, reiterated his assertion that without perceptions conceptions are empty, but he

did not make a clean sweep of empty conceptions. The "emptiness" of the Categories is instructive.

7. The confusion in Kant's account of the elements entering into knowledge is, I imagine, Schopenhauer's reason for holding that Kant can only have had the fundamental principle of his method imperfectly present to his mind. It is really almost impossible, as Schopenhauer remarks, to say what Kant regarded as the object of experience. In the *K. d. r. V.* ideas of sense, objects, things-in-themselves, sensations, conceptions, schemata, all play the rôle of objects of the mind. The Categories, too, are defined in many ways. At one place they are called "the mere rules of the synthesis of that which empirical apprehension has given *a priori*"; at another they are said to "differ in no respect from the formal acts of the understanding in judging"; and as a mean between these two we have the most generally cited definition of them as "notions of objects generally by which the sense elements of these objects are conceived to be determined in respect of one or more of the various logical functions of judgment". The chief cause of this confusion, or "principle of accommodation"—to use Schelling's phrase—seems to me to be the fact that Kant could not freely state what Perception was because he had the idea of finding, as Schopenhauer notices, the last elements of intuitive knowledge, of all knowledge, in the *abstracta* of thought; having this idea, he had always the secret fear of wrecking himself with his Copernican find of the categories in the "given," as he called it, which he felt got on somehow quite well without pure conceptions. Fichte and Schelling inherited from Kant this dread of making Metaphysic dependent upon an assumption, and so of lapsing back into Dogmatic Realism; and, accordingly, we find both seeking to constitute for it a first principle which was above all proof, and which developed difference out of itself. But such transcendent explanations of experience were only invented to overcome an unreal difficulty, for "the given," if properly understood, is no difficulty nor reproach to Metaphysic; it really represents an abstraction incident to philosophical reflexion, and not an element in, or a feature of, *naïve* or uncritical consciousness, for such consciousness is an undifferentiated sense of existence in which the distinction of subject and object does not exist. The only assumption that philosophy requires to make is that there is a world to explain, if this can be called an assumption. The attempt that Spinoza made to prove the existence of his universe, although the most splendid piece

of speculative daring in the history of philosophy, is a superfluity, and an artificial difficulty.

Kant's question, Schopenhauer rightly says, is the question of conceptions. True, the problem of the *K. d. r. V.* comes to be the relation of conceptions to perceptions and *vice versa*, and Kant more than once insists that the two are mutually related; yet, as his theory of knowledge is a logic, he tends to find the *rationale* of knowledge in pure conceptions. His whole difficulty in relating the elements of knowledge to each other arose from the fact that he in his thought likened the categories to conceptions through want of an explicit and persistent recognition of the nature of conceptions. [Kant, as is said, rarely defined his working terminology.] If the categories are conceptions they must be explained as coming from experience, the source of all conceptions. The categories are indeed necessary to experience, but to experience *in general*—each stage, that is, of experience is determined by the relevant categories; but the lower stages of experience, for example, are not determined by the categories of higher stages—perception by the categories of reflexion, for example—although the higher stages embrace and transcend the lower.

Schopenhauer himself classifies the Categories according to the planes or stages of experience they characterise: the perceptual, the mathematical, the logical and the ethical in order. As in Logic we say that the subjects of our propositions exist as real in the continuum in which we happen to be at the time moving, so the categories are real, each in its appropriate sphere. We must not seek for *Cause* in the world of perception, for example; we can never *see* a cause which is wholly cause and not partly effect and also wholly distinct from its own effect; equally vain would it be to look there for Freedom or Identity, although people have done both (as when court-ladies sought for two precisely similar flowers on hearing of Leibniz' principle of the identity of indiscernibles). Prof. Laurie somewhere calls Cause a *dialectic percept*, and the expression is a very good one, for it brings out the fact that we can only see or perceive Cause by an effort of abstraction. Schopenhauer has taught us that the reality of any element of knowledge can only be vindicated by its being shown to be perceptual or perceptible, although in his polemic against the Abstract Method he forgets that certain elements in things and in knowledge can only be seen or perceived by abstraction. There is something, for example, ideal and something real about every category; Cause, say, is at once a principle of the Under-

standing and really the energy or movement in the world of things. In one sense, of course, no category represents a reality or thing either in my head or out of it; there is no such a thing anywhere as mere space, or mere cause, or mere negation. The categories are, in short, all abstractions, but not conceptions or notions. Conceptions are a particular kind of abstractions, and so are categories: to conceptions *material* entities correspond, but to categories only relations or forms. As abstractions, the categories are indeed ideal, mental; and we may, therefore, say they are supplied by the mind to experience in general, if we remember not to substantiate them in this handing over. A category represents a formal aspect of experience which we may think of apart (we may have *conceptions of the categories*): as to real existence, a category is as real as a *law of nature*; both are *abstract-percepts*, which we may *choose* by an act of abstract attention to *see*. Knowledge consists in the detection of relations existing between the different planes or sections of the perceptual continuum, the difference in perceived things being that some are immediately and others only mediately perceived. The psychologist recognises the fact that all knowledge is in its first and last aspects, as Schopenhauer says, Perception, by his conception of various mental *objectiva* and by his calling all mental entities *presentations*; even sensations by being apperceived become and are presentations or perceptions. In thinking the categories out, Kant's mind must have been influenced by the Scholastic conception of *Essence*, as Hegel's afterwards was when he talked of thinking, by the might of thought, through the hard husk of things.

8. The true reason of Schopenhauer's revolt from the method of Conceptions is to be found, it seems to me, in the difficulties in which he felt himself involved by the theory of Subjective Idealism. That Kant distinguished the Ideal from the Real (see above) means to Schopenhauer that Kant's working doctrine was Subjective Idealism. I will not here seek to inquire whether a good case could be made for Schopenhauer's interpretation. The first step towards Subjective Idealism was made, he says, by Berkeley, a philosopher to whom Kant does scant justice, and Berkeley's Idealism Schopenhauer takes as established matter of philosophy. The second and final step towards Subjective Idealism was taken by Kant, who proved that the forms of knowledge were subjective, and this step must be associated with the first. Schopenhauer again and again states and professes the doctrine of Subjective Idealism

with a remarkable evenness of candour and conviction. "The world is my idea," is the opening announcement of his chief work. "If I am not, there is no longer Time," he elsewhere says; and he consistently employs the expressions "objects" and "ideas of the subject" as convertible. Locke, Berkeley, Kant, and himself, he held, represented the stages in the development of a single thought; it having been reserved for himself to give the proper proof of the ideality of the world by showing it to be through and through, *i.e.*, formally and materially, a creation of the *brain* (!). He does not consider the inconsistency of holding that the brain as an "object" is of course an "idea" of the subject, and yet at the same time the *cause* of experience and the world. We may draw the line here, and refuse to proceed over a logical contradiction, but the exigency of the system demands our allowing it to lapse. It is partly atoned for or explained by the fact that he takes "The world is my idea" to be true of every percipient, and lets the question of the origin of the world slide into the darkness of the thing-in-itself. But his difficulty is, and this is the chief point: granting that the world is my *Vorstellung*, how ever am I to get out of *Vorstellung* or subjectivity? Philosophy, he says—all philosophy from Hinduism to his own times—is a search for the Thing-in-itself. We may agree to this, if it means that philosophy seeks the unification of experience. He then tells Kant that from the idea nothing but the idea follows (he here makes an inclusive sweep of all *ideas*: his own "perceptions" or "objects" and Kant's ideas—all are ideas, *Vorstellungen*), and that, in short, the path of Reflexion or Knowledge is closed as the path of philosophy. The obvious thing to say about the "Dialectic" of Kant is that, of course, it is true, but it would have been much more natural to seek to account for conceptions out of perceptions, and perceptions out of—something else—the Thing-in-itself, say—than perceptions or objects *out of* conceptions. Now, Schopenhauer was perfectly right in saying that knowledge is originally and in itself perception, but he ought to have kept more true to this ruling of his own. Had he done so, he would not have maintained that the world is only my idea, for Perception does not teach us that. When Berkeley "sends a man to his senses" to find that matter is really a plexus of ideas, he forgets that he is asking the man to test and to satisfy a philosophical hypothesis, and that Perception, in fact, never is equal to the distinction between idea and thing, for it does not break up the unity which the world is to intuition.

In Intuition or Perception we never ask ourselves what the data of experience *mean* (e.g., whether they are 'things' or 'affections' in us, or signs, &c.), for the very forcible reason that we do not, in the simplest form of Perception, define ourselves as over against the world; we are in Perception ourselves part of the great order which is to Perception a sphere whose centre is anywhere. A healthy cow perceives just as well as a philosopher—better, possibly, because it has had no difficulties about the Ego and the Non-Ego.

The Thing-in-itself is the shadow cast by the Reflective or Abstracting Understanding; it represents a structural paralogism or 'idol' of the intellect: it seems to mean generally either the pseudo-reality we attach to an abstract-percept, such as Space, or Cause, or Identity, or the world which we leave for the moment out of count in focusing attention exclusively on one of its elements. Both meanings of the word can be exemplified in both Kant and Schopenhauer. Both, for example, treat Space as one indivisible whole; and both require a Thing-in-itself to determine or account for what Kant called the "given": Kant, for the reason that we do not originate the particular element in experience; Schopenhauer, because he felt the unsatisfactory character of the teaching of Subjective Idealism. As, in the latter case, with both philosophers the Thing-in-itself is primarily invented to get rid of the difficulty bred of a belief in an abstraction or unreality—'the given,' to wit, in the shape of *mere* sense-idea or sense-affection—and as, in the former, the Thing-in-itself is a pure mental fiction, we may safely deny that there is any such thing in reality. V. Hartmann's expression for the Thing-in-itself in Kant hits off perfectly what it really is in general; he calls it a *negativen Grenzbegriff*—a negative limiting conception.¹ The abstraction made by the Subjective Idealist in his false account of Perception has wrought the direst havoc in Philosophy; his account is based on the untrue and absurd supposition that Perception gives with one hand what it takes away with the other; that it says at once: 'Here I give you *fact*,' and 'No, it is *only* idea'. The truth is that Perception discloses from first to last fact, and that any 'ideas' or fictions or negations we find in sense-perception represent a subjective equation or subjective abstraction. This may seem an unguarded statement in view of the fact that Perception sometimes is illusory. Illusion is an extremely difficult factor and an extremely important factor

¹ *Studien und Aufsätze*, 556.

to cope with, but I think it will be found that nature corrects her own illusions by natural process—that is, the fact, if illusive, does not destroy for the mind the objectivity and reality of Perception. “All knowledge is in itself and originally Perception”; Science rests on the objective validity of Perception.

Schopenhauer has helped to bring out—and indeed, by his own failures, has helped to illustrate—the extravagancies of the method of Indirect Reflexion upon experience when relied on more or less exclusively to the neglect or discredit of the method of Direct Perception. In his mirror (which is by no means always clear) we see the paralogsms incidental to an imperfect analysis or recognition of the nature of conceptions, and in himself we can see the paralogsms incidental to an imperfect analysis or recognition of the nature of perceptions. Thus he has helped to bring Philosophy into the daylight of Realism, by bringing out the realistic elements in the Kantian doctrine. In the *rôle* he assigns to Understanding and Reason—a somewhat subordinate one, it may seem, but not really so—of interpreting the data of perceptual experience, one finds a valuable corrective to the Fichte-Schellingian theories of a primary and absolute knowledge resident in pure reason. Many questions cannot be answered owing to the radical error that lies in them as questions: the Thing-in-itself question is one of these.

I have had to leave many extremely interesting aspects of Schopenhauer's criticism out of sight. One would have liked to look carefully through the holes he has drilled into the “blind-windows” on the Category-list, but that would mean a separate study.

IV.—DISCUSSION.

ON THE ORIGIN OF MUSIC.

I. By RICHARD WALLASCHEK.

It is a well-known fact, established by the observations of travellers and investigators, that the one essential feature in primitive music is rhythm, melody being a matter of accident. We do not meet with a single instance among savages of a fixed melody—fixed at least according to musical principles; melodic cadences, where they occur, serve only as signals, or as a convenient accompaniment to certain activities, such as rowing, towing, or fighting. Even among savage tribes where some songs have in course of time become traditional, words and melody are varied after a few repetitions by different singers, or even by the same performer. Whereas again some tribes show an aptitude for imitating European tunes, they are never effectively influenced thereby to the extent of either developing their native musical productions, where these (as amongst the Hottentots) are limited to dance-music, or of creating any where none exist (as among the tribes in Tierra del Fuego). Rhythm, taken in a general sense to include 'keeping in time,' is the essence of music, in its simplest form as well as in the most skilfully elaborated fugues of modern composers. To recall a tune the rhythm must be revived first, and the melody will easily be recalled. The latter may be suggested by the former, but never *vice versâ*. Completely to understand a musical work ceases to be difficult when once its rhythmical arrangement is mastered; and it is through rhythmical performance and rhythmical susceptibility that musical effects are produced and perceived. From these several data I conclude that the origin of music must be sought in a rhythmical impulse in man. I do not mean that musical effects consist in rhythmical movement as such; innumerable ideas and feelings become associated with it, and give rise to those emotions which we on hearing it experience.

If it be asked whence the sense of rhythm arises, I answer, from the general appetite for exercise. That this appetite recurs in rhythmical form is due to sociological as well as psychological conditions. On the one hand, there is the social character of primitive music, compelling a number of performers to act in concert. On the other, our perception of time-relations involves a process of intellection, the importance of which has been pointed out by Mr. Sully, and which I cannot better describe than in his own words:—"This perception of successive or time-

ordered impressions is something more than a succession of impressions or perceptions. It involves a subsequent act of reflexion, by means of which the mind is able at the same time to comprehend them as a whole."¹ Now every product which is of the intellect and appeals to the intellect must contain all the particulars which follow from reflexion and render it possible. And since music is produced not merely as an auditory impression and expression, but also in order to evoke reflexion, it must contain the qualities above alluded to, *viz.*, time-order and rhythm. It is of the nature of mental progress to proceed to the comprehension of all that is apprehended, and to produce much on purpose to be comprehended; this purpose is attained by the use of time-order and rhythm. Such being the grounds for the expression of our mental constructions in a rhythmical form—a form which will be of greater importance the fewer our means of otherwise comprehending the details of those constructions—the question still remains to be answered, Whence does the general appetite for exercise arise? Mr. Herbert Spencer's theory affords the most valid explanation. It is the surplus vigour in more highly evolved organisms, exceeding what is required for immediate needs, in which play of all kinds takes its rise; manifesting itself by way of imitation or repetition of all those efforts and exertions which were essential to the maintenance of life (*e.g.*, the war-dance). And it has, moreover, been demonstrated by ethnological research that to bring about bodily fatigue through the manifestation of energy in a perpetually-increasing ratio up to the last degree of lassitude is an indispensable feature of primitive art.²

It may be objected that a mere craving for rhythm is far from amounting to a desire for tones and melody, and that, therefore, the question, as to what gives rise to our discriminative pleasure in musical intervals, is not yet satisfactorily answered. The

¹ *Outlines of Psychology*, p. 206.

² It is curious, that whereas Mr. Spencer and all the other English writers who treat of the so-called *Spieltrieb* (play-impulse), *e.g.*, Messrs. Sully and Grant Allen, regard it as an entirely German idea, in Germany it has always been ascribed to English theorists. It did indeed find embodiment in the writings of Schiller, but was, in my opinion, smothered rather than brought to light by the philosophical jargon which he learned from Kant, and by his own obscure metaphysical style. He ran into a great labyrinth of metaphysics, whence nobody can find the way out,—nor could the author himself, I should suppose. Hence the theory remained unheeded, though committed to writing nearly a century ago. Put in our times into scientific form by Mr. Herbert Spencer, it has nothing in common with its earlier presentment beyond the name, the grounds being quite different. But just as Schiller was inspired by Pope and Addison in his *Annuth und Würde* and *Briefe über die ästhetische Erziehung des Menschen*, he likewise found approximations to the *Spieltrieb* theory in Home's *Elements of Criticism*, ch. v. (see Zimmermann's *Geschichte der Aesthetik*).

origin of the significance of intervals and our appreciation of them is indeed one of the utmost importance for our present purpose. A simple example, however, will teach us that rhythm and sonant rhythm coincide. Try to play first on a stretched, and then on an unstretched, drum or kettledrum, such as savages use, and you will see that rhythm brings us in and by itself to sound and certain tones, owing to the fact that the rhythmical movement becomes much more distinct and better-marked on the former, than on the latter, instrument. Hence it came about that men did not stop at simply striking on deer-skins as they used to do in ancient times, but proceeded to stretch them first, *i.e.*, to perform on drums and kettledrums. The same implicit principle prompted the custom, in grammar-schools on the continent, of teaching the rhythms of classic poetry in a kind of chant, not of course for musical purposes, but simply because the rhythms were rendered much more distinct when intoned. Perhaps no other illustration shows so well how a rhythmical design, in and by itself, brings us to musical tones, and, by way of these, to the appreciation of intervals and melody.

I not only affirm that rhythm is one of the main constituents, and creates the principal effect, in primitive music as also in our modern music, dance-tunes or what not—a remark frequently made by composers: I also maintain that rhythm teaches us the appreciation of intervals, both as to their order and grouping. An interval as such has no musical value for us without rhythmical order in time. Even animals recognise and utter intervals, but cannot make any intelligent use of them, because they do not understand rhythmical arrangement. One of the most characteristic signs of a musical nature is, that persons so endowed very often cannot hear any noise periodically repeated without imagining it to be accompanied by music; besides which they are much fonder than unmusical persons of rhythmical movements. Again, rhythm of itself incites us to further rhythmical development, as is shown in an example given by Mr. Grant Allen (*Physiological Aesthetics*, p. 114):—"As we walk along the road, we sometimes amuse ourselves by touching every post, treading upon every second flag, or striking our stick against every lamp-post. If for any reason we are obliged to leave out one of the series, or to desist from want of the objects in question, a slight blank is felt, which is very faintly unpleasant. The nervous system has put itself into a position of expectancy, and is ready for the appropriate discharge at the right moment. If the opportunity for the discharge is wanting, the gathered energy has to dissipate itself by other channels, which involves a certain amount of conflict and waste." Hence arises the craving for a rhythmical succession of bars and periods. Their recurrence and aggregate arrangement is much more marked and can be more easily understood by a repetition of the same tones or tunes over the same rhythmical periods; moreover, in order to give a more

pronounced tone to a rhythmical period, higher notes are used, lower notes marking a decreasing movement, and so on, till we have all the elements of a complete melody. Thus we get accustomed to the interval as such, and appreciate it more than the rhythm as such, the former being the more impressive experience. That the development of a melody from detached notes is due in the first instance to a certain rhythmical movement is an obvious fact. Detached notes do not as such prompt to further development or variety. Rhythm is the initiative force which leads us on to any arrangement of notes whatever, although it must not be forgotten that the specific form assumed in any such arrangement depends a good deal upon our contingent ideas and feelings. The power exerted over us by any rhythmical movement lies in its being adjusted to the form in which ideas and feelings succeed each other in our mind. A composer may give us a direct imitation of some movement of external nature (a thunderstorm, a waterfall, or the like); but the fact holds good none the less, that the effect produced in us even in such cases is due to our recognising, in the intensity, strength, velocity, increase and decrease of the movements, forms corresponding to the flow of our ideas and feelings, though the nature of that flow depends entirely on each individual psychological organism.

I am aware that I put forward nothing new in the assertion, that we easily connect an ascending or descending modulation with an increase or decrease of sound, but I have always had the impression that even those writers who appreciate the importance of rhythm in music do not consider this fact a sufficient explanation to account for modulation, or for the pleasure we experience in musical intervals, but go afield for a supplementary fact. This they find in the current modulations of speech, or in the intervals used by birds in their 'songs,' by the perception of which men learned the use of, and came to take pleasure in, intervals. I for my part think that Mr. Spencer's general theory of the origin of art is entirely adequate to explain the origin of music, and that to adduce speech and its modulations is not only unnecessary, but absolutely untenable. Men do not come to music by way of tones, but they come to tones and tunes by way of the rhythmical impulse.

We are accustomed to speak of 'music' in the animal kingdom, and especially among birds, but in so doing we do not use the word in its proper meaning. The emission of sounds such as we hear in nature is by no means real music, and this is borne out by the fact that it does not develop correlatively with the evolution of the higher classes of animals. It might indeed be possible with some little trouble to show, as Darwin did, that there is something akin to singing even amongst mammalia, but it will never be possible to show that this so-called singing of mammalia, if from a musical point of view it be worthy of notice at all, is really developed from birds' singing, with human

song as its highest outcome. I am not competent to settle the question whether there is or not an hereditary transmission of acquired modifications, such as Darwin in his theory of music accepts and Prof. Weismann denies; but, even if all Darwin's hypotheses were correct, it would not follow that human music and dances were the developed outcome of birds' songs and of dancing among animals, for the reason that in a primitive stage of society the former have in many cases nothing to do with love.¹

It is possible that male-birds of handsomer plumage are preferred by the hen-birds, but may we thence infer that birds understand painting? Similarly some male-birds may be preferred by the hens for the quality of their song; can we, therefore, say that they understand music? Is the bird's song a composition? Certainly not. But by music we always understand a musical composition, or at least its reproduction, that is to say, a consciously designed and constructed work of art. I am aware that there is no difference in kind between the bird's instinct and the human design; there is only a difference of degree, as between mind and instinct generally, but this degree must nevertheless be attained before we are justified in speaking of any group of sounds as music. Birds have no conscious intention of charming by the display of magnificent hues in such and such a manner, nor is it within their power to choose their colours any more than it is to change their songs, so as to make them correspond with their feelings. A corresponding change may actually have taken place in many cases, but are we sure that it was intended? Can we take it as a consciously-arranged composition?

On the other hand, however, it may be asked whether the hen-birds, in distinguishing between different singers, do not show that they appreciate their singing to at least a limited degree. But even if it be admitted that they really appreciate *singing*, their discriminative taste for bird-minstrelsy could as little be called a feeling for music as their distinguishing one bird's plumage from another amounts to a feeling for painting. No doubt, every bird hears sounds and distinguishes the call of one bird among that of others, but it is one thing to hear a sound, another to recognise it as a melody. We usually say the hen-bird chooses the best singer, but which is the best singer? The audience in a concert-room do not agree which singer is the best, while we pretend to know exactly which bird sings the best and to think that the hen-bird knows it too and is certainly of the same opinion as ourselves! Not one of us knows whether the hens' choice among the cock-birds' singing is awarded on musical

¹ Cp. the corresponding passages in Mr. Spencer's last essay on this subject (*MIND*, October, 1890), and C. Stumpf in the *Vierteljahrsschrift für Musikwissenschaft*, 1885, "Musikpsychologie in England".

grounds, whether other motives do not prompt them to follow the males, and whether the coincidence between their action and a certain quality of song be only a matter of chance. To me it appears that birds are lacking in that act of reflexion by which they might comprehend the time-ordered melody as a whole, and distinguish it from a certain number of incoherent notes. Birds do not keep time unless they reproduce invariably and mechanically the same short refrain at the same pitch, and I fear that in speaking of bird-music we impute too much of human psychological interest both to their declarations of love and to their appreciation of the so-called 'song'.

As to that, some writers would seem to have a special mission to interpret the language of birds. Mr. Berg, for instance, assures us that, strictly speaking, all kinds of animals equipped with a sound-apparatus, including frogs and crickets, "must be considered as musical creatures, since they experience the same feelings in their concerts as music excites in us, and many of them pursue in music the same object as ourselves". I must confess I envy Mr. Berg his ability of extracting correct information from frogs, crickets, and the like, as to their musical attainments, and I envy too the frog himself for his admirable knowledge of what causes pleasure in human beings, without which he would never have been able to compare his own feelings with ours, or to disclose that he takes the same pleasure in croaking as we in singing; we poor men sometimes do not know ourselves of what our pleasure in art consists. In my opinion the simple beating of a drum contains more 'music' than all the sounds uttered by birds, and we owe our musical faculty to the time-sense rather than to our sense of hearing. Of course, in following the utterances of the animal kingdom down to a very primitive stage, we must go back as far as the bird's song, but we are not more or less justified in discerning in it the origin of music, than we should be in saying that all animals equipped with sound-apparatus speak English, the English language being just as peculiar an order of utterance—of which the peculiar origin is still *sub judice*—as is human music. The origin of music is not to be sought in the fact that birds call 'cuckoo,' cluck 'go-back,' or imitate our speech, but in our connecting certain things and ideas with certain sounds. It is true some animals do so too, but why then do we not at once call birds little poets, who sing the praises of universal love as they flit in the forest from bough to bough? We know now-a-days that even some kinds of fishes produce sounds: why are not they considered musical? There must be as great a difference between these sounds and our music as there is between a barking dog and a poet—a difference perhaps only of degree, but yet of so many degrees as to render us unable to call both by the same name, and this for the same reasons as

prevent us from calling a fish an ape, although in the scale of animals the latter is evolved from the former.

In former days we had a much simpler, yet similar theory, without heredity and development, according to which men learned music by direct imitation of the singing of birds. From an ethnological point of view, a counter-proof to this theory is not far to seek, namely, that we have never heard of an imitation of the singing of birds among savages, or even an appreciation of it; wherefore, I presume, men do not acknowledge the song of birds as music before they are themselves well advanced in the art.

Some time ago Prof. Weismann, in an essay full of interesting and important matter, declared that music arose "as a secondary effect of our sense of hearing not originally intended in nature". It is perhaps a verbal contention to question whether we are justified in speaking of intention and of secondary effects in nature, but I do not think that our musical faculty is an effect of our sense of hearing, because the perception of particular tones and tunes plays a very low part, if any, in primitive music—certainly a much lower part than the rhythmical arrangement. It is perhaps for this reason, as Prof. Weismann endeavoured to show, that the sense of hearing in human beings was well developed before musical practice began, and was not developed by way of the latter.¹ I entirely agree with Prof. Weismann in his assertion that the same sense of hearing produces different musical effects according as there are in human beings different qualities of "soul". My conclusion, however, is that, in an inquiry into the origin of music, it is these peculiar qualities of "soul" which have to be examined, and not a certain condition of the sense of hearing. And this quality is the time-sense with the faculty of discerning in the strength, velocity, increase, and decrease of sounds produced by our "surplus vigour," forms corresponding to the flow of our feelings and ideas.

Another theory, according to which music arose from speech, seems to me to explain a correct observation in a wrong direction. We can see, in almost all the examples furnished by ethnology, that music is the expression of emotion. There is no doubt that emotion is one, though only one, of the sources of human language. Consequently we speak in faster or slower, louder or softer, higher or deeper, tones, and with more or less variety of accent, for the same reasons as would influence us in musical expression. And since through speech the ideas which influence the form of our expression generally (to wit, its intensity, strength, rapidity and modulation) acquire a definite verbal setting, we learn to connect certain ideas with certain forms of expression. By reason of this connexion between our ideas and feelings and some form of

¹ Brehm in his *Thierleben* and Mr. Sully in an essay on "Animal Music" (*Cornhill Magazine*, 1879, ii. 605) came to the same conclusion.

expression we come more easily to associate them with any kind of music.

We need not push this theory too far. Music will certainly develop this form of expression, than which it has no other, in a different manner from speech, the only media of which are tones and their modulation, though the accompanying mode of diction is not to be neglected: it renders possible the composition of a poem, and qualifies music as a higher intellectual pleasure than any simple auditory impression could be. The characteristic feature, in my opinion, of Mr. Spencer's speech-theory is, that he first showed an intimate physiological connexion between all our emotions and their expression, leading us to discover vestiges of music in declamation and conversely. This it is which distinguishes it from all other speech-theories of the last century, which assumed the simple intuition of language ready-made (a notion long since refuted in the speech-controversy of that century, notably by Langere; see Jullien, *La musique et la philosophie du XVIII^eme siècle*).

Whereas Mr. Spencer, however, seems to think that musical modulation originates in the modulations of speech, I maintain that it arises directly from the rhythmical impulse. It is true that modulation in the developed art of music is very often influenced by the modulations of speech, and it is remarkable that this influence occurs to a greater extent in modern music than in the older classical school (take Berlioz, Wagner, Beethoven in the 9th symphony, and compare, say, with Palestrina and Handel). Herein may lie the source of that unanimity which I have noticed between the most zealous opponents and adherents of the speech-theory on the one point, *viz.*, that vestiges of declamation are to be met with in music, and that we ought, on the strength of this advance, to finish a controversy nearly a century old. That it has become customary for our composers to have regard to the inflexions of the speaking voice does indubitably facilitate the connexion of ideas and feelings with music, even if it be purely instrumental; but the fact has nothing to do with the question of the origin of music. For myself, I doubt that such is the origin; admitting, none the less, the present reciprocity of influence in both music and speech, and that for several reasons.

1. We find even in the most primitive state of culture a sort of recitative, side by side both with a kind of music, in which the rhythm alone plays a leading part, and with songs, the words of which are perfectly meaningless or at least cannot be understood by the tribe in question. In such circumstances it is obviously impossible for the musical modulations to have taken rise from the spoken modulations, since there is no genuine speech in the case at all. The Hottentots, *e.g.*, not only borrow from others songs ready-made which they themselves do not understand, but they also themselves compose songs with a meaningless chorus. Primitive

vocal music reveals in many cases no connexion with language, but is simply a succession of musical sounds sung by the voice. This stage of music is found among savages neither earlier nor later than, but simultaneously with, the recitative.

2. Speech expressed in song does not develop at the same rate as speech itself; on the contrary, the intellectual importance of singing declines with the higher development of language. Examples of a word changing its meaning when spoken with a different vocal inflexion are only to be met with in primitive language. Mr. Spencer in his recent essay says:—"It may be that music uses distinct tones and speech indistinct, but the former might be developed from the latter". If this were so, we should inevitably discern some traces of this development in its continual advance from a primitive stage up to perfectly artistic songs, just as we are able to follow a parallel development from the movements of a primitive, up to those of a modern, dancer.

3. Music is an expression of emotion, speech the expression of thought. If we assume that music originates in, and is developed from, speech, we must also assume that emotion is developed from thought. It may be that in the adult human organism particular emotions do arise in this way, but it is not true of emotions generally. Moreover, many cases of aphasia prove that an expression cannot be emotional and intellectual at the same time, the one kind of expression arising in and spreading through different parts of the brain and nervous system from those occupied by the other. It may be, however, that in a very primitive stage of mental development thought and emotion have not yet become clearly differentiated. To illustrate my point, let us compare singing and speaking with drawing and writing. Each member of these pairs constitutes at the present day a distinct order of activities, though at one time each pair wrought with the same materials, writing being picture-drawing, just as singing and speaking may have used the same vocal sounds. Each, being a specifically different mode of expression, developed its material in course of time in a very diverse manner, till musical tones and spoken sounds came to be as distinct one from the other as a picture from a letter. But no one would say, nor indeed has any one said, that drawing originated in writing, or writing in drawing. I think then that music and speech did not arise the one from the other, but that both arose from (or together with) an identical primitive stage in one of their common elements. Hence it happens that in inquiring into the origin of music we necessarily come into contact with primitive language, and in inquiring into the origin of speech we come into contact with primitive music, or, more correctly speaking, with the corresponding sounds. Primitive human utterance, using sound-metaphors and onomatopœia in order to make itself intelligible, may resemble primitive musical tones; nevertheless an early separation of distinct tones and indistinct sounds seems to

have taken place, not as a transition from the one as prior to the other as succeeding, but as a divergence from a primitive state which is, strictly speaking, neither of the two. Sometimes, however, a kind of unity remains even through later periods of civilisation, as ethnology can show (*e.g.*, in Dahomey, Siam, China, Japan, Tierra del Fuego); and, bearing this in mind, we cannot say, as has been alleged by so many opponents of the speech-theory, that there is no singing in speech in the world at all. For this reason I should not agree with Gurney, who said "that the six or eight wordless notes, which a child of four will croon over to itself with never-ceasing delight, are, both in themselves and in their emotional effect, as truly and absolutely remote from speech as is the *Eroica* symphony". They would be so indeed if they were purely musical notes, but they are in fact neither music nor speech. I have never heard an infant really sing—that is to say, invent (though it may repeat) a song—before it could speak, while its crying is unfortunately a very familiar experience; and it is just this power of uttering no matter what that enables it in course of time to evolve a faculty both of singing and speaking. Gurney's further remark—that music is a separate order, an adjustment of proportional elements, of which speech knows nothing—is inapplicable to all its elements, since music has one element in common with speech, *viz.*, sound-production. Look at the results of ethnological research. It is as difficult to tell whether a primitive utterance is sufficiently developed to be called musical as it is to know whether it can properly be called language or not. This is perhaps the reason why Darwin and Mr. Spencer do not agree on the question as to which comes first, music or language. "Spencer," said Darwin, "comes to an exactly opposite conclusion to that at which I have arrived. He concludes, as Diderot did formerly, that the cadences used in emotional speech afford the foundation from which music has been developed, whilst I conclude that musical notes and rhythm were first acquired by the male or female progenitors of mankind for the sake of charming the opposite sex. Thus musical notes became firmly" [I should rather say, possibly] "associated with some of the strongest passions an animal is capable of feeling." I think Darwin's mistake in the sentence here quoted lies in his speaking of "music," instead of musical *sounds*, *i.e.*, sounds which come to be used later in music. Music proper is a faculty which both in the child and in the savage always manifests itself later than speech.

There are besides some minor points in the speech-theory requiring perhaps further explanation. My experience has not shown me that people who have a singing element in their speaking voice are more musical than others. And even in their case it would be impossible as a rule to put down any given spoken accents in notes. Again, these accents are not objectively fixed, nor is speech an abstract organon separated from all

concrete life. Everyone utters the same idea in his own fashion, and speech is only the sensuously perceptible part of a great psychical process, differing in different individuals at different times. It may, therefore, be no easy matter merely to imitate the modulations of speech, nor would it aid us in being mutually more intelligible (though it might afford us a good deal of guess-work in ideas), nor could music (I mean the art as such) ever evolve a new language, because musical forms—that is to say, the intensity, strength, velocity, increase and decrease of tones—can be understood only in a relative sense. Hence it has very often been said that music represents only the typical forms of feeling. Strictly speaking, however, it is impossible to represent the type as such. Representation is individualisation. On the other hand, it is equally impossible to express by musical methods all our particular feelings. Can we evade this dilemma? I think so. The musician is situated similarly to the anatomist, who gets a small piece of bone and is able to tell exactly whether it is a human bone or not. It is not of course the human type as such that is represented by the bone, and no one can tell to which individual the bone belonged, yet we recognise in this small fraction of a particular man the human type. So I too am not wrong, I hope, in asserting that music reproduces such a small fraction of the forms both of external and internal nature that we can recognise in it at best the type, and not the specific details. Music can rouse feeling, but it cannot cause *what* it is we feel, this being the outcome of each individual psychical organism.¹ Coincidence between the feelings of composer and audience can be only a fortuitous, not a necessary, result, because of the relative nature of musical forms. Nor is it essential, from an artistic point of view, that they should completely coincide, since in the cultivation and exercise of music a man's intention is not so much to make himself intelligible as to inspire his fellowmen.

Correlative to the decline in the importance of vocal inflexion as an intellectual factor in human communication, as language undergoes higher development, is the suggestive power of specific ideas implanted in highly-developed music by feelings and associations, differing in different psychical organisms. And from those vague associations, suggested in a primitive stage by rhythmical movements, are developed the higher pleasures of melody.

I am well aware that celebrated composers and speculative "philosophers" have been opposed to the importance of rhythm in music, but I am also aware that our best possessions are not the theories, but the works of art, bequeathed us by the former, and that our best philosophy is not of the speculative order.

¹ In asserting this rule, some musical forms of a stereotyped character, such as a funeral march or a waltz, cannot be taken into account.

Whatever enthusiastic musicians or "philosophers" may have said of a music of the future without rhythm, I always feel inclined to interpret their prophecies poetically rather than scientifically, and believe that what Gurney said on the other side will remain true:—"Wherever rhythm is perceived with enjoyment, there is implied a nascent stimulation of the dance-instinct, and, however much music 'ought to be' independent of time, I am afraid that in listening to it, with our present physical organisms, we shall retain a prejudice for rhythmical phenomena in preference to unrhythmical noumena".

II. By Prof. JAMES McKEEN CATTELL.

Mr. Spencer's paper on *The Origin of Music*, contributed to MIND No. 60, calls up a subject of widespread interest. It is likely that most readers of the paper will agree with Mr. Spencer in holding that music had its origin in vocal sounds expressing emotions of all kinds, and not solely in vocal sounds prompted by amatory feelings. It may be suggested that the theories of Darwin and Mr. Spencer, like so much in the writings of those who have developed the doctrine of evolution, describe what probably took place, rather than explain why it was necessary that it should have taken place. The theory that art had its origin in overflowing energy is important, but it in no wise explains why art should have followed its historical course of development, nor why we judge one work of art to be good, another bad. It is, however, the part of Mr. Spencer's paper concerned with harmony to which I wish to take exception. Mr. Spencer writes:—

"It goes without saying that there must be otherwise accounted for that relatively modern element in musical effect which has now almost outgrown in importance the other elements—I mean harmony. This cannot be affiliated on the natural language of emotion; since, in such language limited to successive tones, there cannot originate the effects wrought by simultaneous tones. Dependent as harmony is on relations among rates of aerial pulses, its primary basis is purely mechanical; and its secondary basis lies in the compound vibrations which certain combinations of mechanical rhythms cause in the auditory apparatus. The resulting pleasure must, therefore, be due to nervous excitations of kinds which, by their congruity, exalt one another; and thus generate a larger volume of agreeable sensation."

It is strange that the great advocate of the theory of evolution should hold that harmony, which has been gradually developed from melody, should owe its emotional effects to an entirely different origin. Mr. Spencer's conclusion amounts to saying that harmony gives pleasure because it is pleasant. The researches of Helmholtz, indicated by Mr. Spencer,¹ have thrown much

¹ Not quite correctly; since the "secondary basis" does not consist of vibrations formed in the ear, as was formerly supposed, but of vibrations in the air exactly like the other "aerial pulses".

light on the physical basis of music. Helmholtz has shown that those combinations of tones which are considered the most harmonious are the freest from "beats". Beats are undoubtedly disagreeable. We do not know why this is the case, but we have the analogies of flickering lights and tickling, and may suppose that these rhythms are obstructive or hurtful to bodily and mental life. The pleasure of harmony is not explained, however, by showing that it avoids disagreeable sounds. Wundt has laid stress on the fact that harmonious tones are most nearly related to each other through their overtones and difference-tones, and holds that we derive pleasure from detecting such hidden resemblances. This is doubtless a fact, but it does not go far toward explaining the great emotional effects of music.

Mr. Spencer seems to hold that nothing in a single tone corresponds to a combination of tones, and that the intervals used in music are not found in nature. The facts are, however, different. Rameau and d'Alembert knew, more than a hundred years ago, that the overtones (harmonics) given by a single tone are in harmony with each other, and Helmholtz has shown that all difference in the timbre (quality) of sounds rests on the number and strength of the overtones present. Thus, if the string of a violin be plucked, it will vibrate, and will give a tone whose pitch corresponds to rate of vibration. But, in addition to vibrating as a whole, the string will vibrate in two equal parts; each of these parts will vibrate twice as fast as the whole string, and give a tone an octave higher than the fundamental tone. The string will also vibrate in 3, 4, 5, 6, &c. parts, and will give a series of tones corresponding to these rates of vibration. If the string give *c* as its fundamental tone, in addition to this *c* we can hear c^1 , c^2 , e^2 , g^2 , $b^{7/2}$, c^3 , &c. In a single tone are included, therefore, octaves, fifths, major and minor thirds, and, indeed, all the intervals and chords used in music. Thus music is not, as is commonly supposed, a creation of the imagination, freer than the other arts from a physical basis, but is rather a discovery and a development. All the combinations of music are latent in the sounds of nature, and the history of music bears witness to the gradual adoption of such as are more remote. Thus, after the octave, the fifth was used, then the major and later the minor third, and so on to the combinations of modern music. In like manner, harmony has been developed from melody, and the complex orchestration of Wagner's operas from the reed and lyre. The gradual perfecting of the scales used in music was simply the discovery of the relations present in every tone of the human voice.

As we have seen, all differences in the timbre of tones depend on what overtones are present, and on their relative loudness. A tuning-fork does not have harmonious overtones, and it gives a thin and empty sound. A flute has only the first overtone emphasised, and we consider its tone sweet, but thin and cloying.

In the trumpet the higher overtones discordant with each other are prominent. The violin possesses the complete series of overtones, and the player can emphasise such as he chooses, hence it is an instrument unrivalled in its power of expression. The difference in the vowel sounds depends on the overtones present. Thus, *u* (as *u* in *flute*) is poor, *i* (as *ea* in *beat*) rich in overtones. The difference in voices—and nothing is more characteristic than the voice, even in ordinary speech—rests on the overtones present. As the voice changes in expression, different overtones are emphasised, and when it is swayed by emotion its quality still depends on the strengthening or weakening of certain overtones.

The theory I suggest to account for the immense emotional effects of music is, that music expresses the emotion of the human voice. And this, not in any mystical manner, but simply by using and developing those combinations of tones which the voice uses when moved by sorrow and joy, despair and exultation.¹

Owing to reasons purely physical and in harmony with the other bodily expressions of the emotions, certain overtones are strengthened, and certain others weakened, according to the emotion which moves the mind. Even in the lower animals, we are greatly stirred by the joy in the song of birds, or the pain in the cry of a hurt dog. In man it is the voice which, before all else, expresses and excites emotion. We cannot fill the voice with feeling as we will, but the great musician, having the passion and the art, can combine tones and instruments so as to express his emotion. Music is thus exactly in harmony with the plastic arts. It copies, selects, combines, idealises, and uses the power of association. Art does not surpass nature, but it makes the best of nature a part of daily life.

¹ These overtones might be determined for the voice in real or simulated emotion; it is likely that we should thus find an interpretation of major and minor keys, &c. Such an experiment will be crucial for this theory. In the meanwhile I suggest: (1) the tones of the human voice are those used in instrumental music, the overtones of the lower instrumental tones and the overtones of the voice making the correspondence complete; (2) the power of detecting discord in musical instruments is greatest within the compass of the voice; (3) the voice in singing is more expressive than any musical instrument; and (4) instruments like the piano, which cannot express true or varied intervals, do not have much emotional effect. I do not, of course, want to ignore other sources of pleasure in music, least of all rhythm, which, in a popular audience, is probably the most potent. Indeed, I should like to suggest that in the combination of melody and harmony, which are stirring, with rhythm, which is soothing, we get an emotional effect analogous to that produced by stimulant and narcotic drugs—alcohol, tobacco, opium, &c.

THE COEFFICIENT OF EXTERNAL REALITY.

By Prof. J. MARK BALDWIN.

Among the many interesting points raised by recent discussions in MIND on the Cognition of Physical Reality is that of what I venture to call the *Coefficient* of External Reality. By coefficient I mean the something which attaches to some presentations in virtue of which we attribute reality to them; while others, not having the coefficient, are discredited. The diametrically opposed solution of this question of coefficient by Mr. Stout on one hand and Dr. Pikler on the other is remarked by the Editor in his review of the latter in No. 61.

The opposite solutions are these—and the opposition runs through the history of opinion on this topic. To one class of writers, the coefficient of the reality of an image is its independence of the will (so Spencer, Stout, the Editor, and innumerable others); to another class, the coefficient is subjection to the will (so Bain, Pikler). And it is hard at first sight to see how such a flat contradiction can arise between such careful thinkers. My own reflexion on the general psychology of belief has led me to a point of view from which I am able to see the probable cause of this apparent difference of opinion.

Suppose we make a distinction between a memory-coefficient of reality and a sensational coefficient: by the latter, meaning the criterion of present sensational reality; and by the former, the something about a memory which leads us to believe it represents a real experience, *i.e.*, is not a mere creature of fancy. A moment's consideration will lead us to see that these two kinds of reality differ in their relation to the will. Certainly, a present sensible reality is not under control of my will; it is independent, and if my coefficient is to be discovered in the relation of the presentation to my voluntary life this must be its expression, and I go over to the class of writers who find the psychological basis of external reality in sensations of resistance. But when we come to enquire into the memory-coefficient, asking the question, what character it is in a memory-image which testifies to its being a memory of reality, the tables seem to be turned. Without stopping to examine other views, I hold that that image is a true memory which we are able to *get again as a sensation* by repeating the series of voluntary muscular sensations which were associated with it in its first experience. In other words, if it represent a real former experience, it will have with it muscular (resistance) associates which will make it possible for me to change it into a sensational experience again *at my will*. The memory-coefficient, therefore, is subjection to will in the sense indicated. If this be true, the answer given to the main question of belief in objective reality will depend upon whether we look at it from the side of present reality or of reality as remembered.

Further, this memory-coefficient of external reality must be carefully distinguished from the coefficient of memory itself; the latter being the feeling that an image has been in consciousness before, *i.e.*, recognition, or sense of familiarity. I may recognise an image as a true memory, but yet not give it objective reality. The difference between recognition or memory-reality and the memory of external reality, is this: the former can be brought up by appropriate associates at will, but these associates and the resulting memory have not the sensational coefficient after we get them; that is, they are not individually independent of the will. While, as is said above, the getting again of a remembered reality in the external world is by a series of sensational (resistance) associates, and the resulting experience when reached is a sensation independent of the will. In Hume's phrase, "an opinion or belief is a lively idea related to or associated with a present *impression*". A true memory, in short, is an image which I can get at will by a train of memory-associates, and which, when got, is further subject to my will; a memory of external reality, on the contrary, is an image which I can get at will by a train of sensational associates, and which, when got, is not subject to my will. Of the two, the former is important for the psychology of belief in general; the latter alone for the theory of belief in external objects.

These three factors in belief appear clearly in this example:—An infant, after certain muscular movements, enjoys the contents of his food-bottle, *i.e.*, sensational coefficient of external reality. Again, his bottle lies beside him, he reproduces his enjoyment by voluntarily repeating the muscular series which before led up to the enjoyment, *i.e.*, memory-coefficient of external reality. Being satisfied and drowsy, the bottle-image comes up in consciousness by association with the memories of the muscular movements, the real movements not being made nor the enjoyment reached, *i.e.*, coefficient of memory. Once more, the bottle-image comes up, he makes the muscular movements, but fails to get the satisfaction, *i.e.*, memory-coefficient is not supported by sensational coefficient, and illusion results.

As illustrating the two coefficients of external reality and their confusion, Dr. Pikler in *MIND*, xv. 396, brings against Mr. Stout's view, that interruptions of regularity determine objective belief, the objection that such interruptions occur in the subjective order but are not, as interruptions and quite involuntary, part in the objective (sensational) order; overlooking the alternative that such images usually bring associates which throw them into the memory-order. And Mr. Stout seems quite right in saying that when there are no such associates they *are* put in the sensational order (*MIND*, xv. 549). In arguing that reality finds its criterion in subjection to the will, I think both Prof. Bain and Dr. Pikler have in mind the memory-coefficient—the question put by Mill:—"What is the difference between think-

ing of a reality and representing to ourselves an imaginary picture?"

What could be clearer evidence that Prof. Bain refers to the possibility of getting reality voluntarily than this quotation:—"Our belief in the externality of the causes of our sensations means that certain actions of ours will *bring the sensations into play or modify them in a known manner*"? Mr. Stout quotes this, and adds (MIND, xv. 33):—"I utterly fail to see how dependence on my own activity can mean the same as dependence on something other than myself"; which simply means that Mr. Stout "utterly fails" to see an essential side of the external-reality problem. Prof. Bain in this quotation is recognising the memory-coefficient, and thus getting a basis for persistence in external objects; and I think Prof. Bain is not open to the charge of having entirely overlooked the sensational coefficient. What Mr. Stout calls Prof. Bain's "obvious paradox" is seen, from what I have already said, not to be a paradox, but a complexity in our belief in objective existence.¹

In Mill there is almost exclusive appeal to the memory-coefficient,² and hence the confusion lurking in his "permanent possibility of sensation". It is perfectly true, as Mr. Stout says, that a possibility is nothing until it is brought to the test of sensation; but it is equally true, as Dr. Pikler says in substance, that a possibility (of getting) sensation may carry belief without such a sensational test. In the former case we ask for the sensational coefficient to the exclusion of the other, and in the latter case we rest on memory to interpret the "possibility" apart from present sensation. In short, Mill's formula may be modified to be true to either coefficient, but not to both; while as it stands it is true to neither, but favours the memory-construction. To express the sensational coefficient, it should read *permanent necessity of certain sensations*; and to express the memory-coefficient, it should read *permanent possibility of getting for myself certain sensations*. But for an adequate theory either aspect is insufficient, because it neglects the other.

¹ For Prof. Bain's clear recognition of both aspects, see *Emotions and Will*, 3rd ed., pp. 578-81.

² See especially pp. 234-238 of his *Exam. of Hamilton* (American Edition). The appeal becomes exclusive in Dr. Pikler's book, *The Psychology of the Belief in Objective Existence*.

³ The element of necessity (resistance) in certain sensations must be added to enable Mill to meet the ordinary common-sense argument that (in his words) "all mankind unless they really believed in matter would not have turned aside to save themselves from running against a post" (*loc. cit.* p. 244): for mankind do not turn aside except when the possibility is of a certain kind of sensations. And he fails to meet the objection to his formula (really the same one) that it gives mankind no means of positively avoiding the post, *i.e.*, by voluntarily bringing about other realities.

We might call the sensational coefficient (independence of will) the *primary* criterion of belief in external objects, and the memory-coefficient (voluntary getting of sensations) the *secondary* criterion. And an adequate formula, to do justice to both, would have to run somewhat like this:—Belief in external reality is a *feeling of the necessary character of sensations of resistance and of my ability to get such sensations again at any time.*

I believe, however, that a simpler formula may be suggested: a formula which will hold that belief in general is a feeling attaching exclusively to objectives, its criterion or coefficient being lack of subjection to the will; that belief in external reality is its very earliest exhibition; and that the belief of which subjection to the will is the criterion is a derived feeling anticipatory of sensational confirmation—just as the memory of which it is the accompaniment is derived and referable for its material to the sensational process. But my present object is only to make clear the issue, and to point out the waste of effort that results from failure to distinguish carefully the two points of view. Among recent writers I think no one else does such justice to both sides of the problem as does Lipps.¹

¹ *Grundtatsachen des Seelenlebens*, ch. xvii., particularly pp. 397 ff.

V.—CRITICAL NOTICES.

The Principles of Psychology. By WILLIAM JAMES, Professor of Psychology in Harvard University. 2 vols. New York: Hy. Holt & Co.; London: Macmillan & Co., 1890. Pp. xii., 689; vi., 704.

Prof. James, a true American for all his European sympathies, has done 'the big thing'. Hitherto the world has known him as a writer of brilliant psychological essays, in which careful reading, acute insight, and daring originality were alike conspicuous. He has now issued an elaborate treatise, in which all (or nearly all) the prominent questions in modern psychology are handled with the old combination of qualities. Large and elaborate, however, as is this brace of stout volumes, it can hardly be described as a carefully organised *system* of psychology after the type of such works as those of Bain and Spencer in England, or of Volkmann and Wundt in Germany. And here seems the best place to say a word or two about the structure of the book. Prof. James frankly tells us that a good number of his chapters are reprints, with more or less considerable alterations, of papers sent to this and other journals. Now, to adapt a series of papers, some of which have appeared in popular magazines, to the exigencies of a scientific text-book does not strike one as an easy task, and our author has not altogether escaped the risks of the undertaking. In truth, an intelligent reader might have guessed that the book had formed itself in the way described. Thus the want of a rigorous sequence, of that progressive development which is essential to the exposition of a body of scientific doctrine, strikes the eye at a first glance. The order of subjects is not always clear, the experienced eye spies ominous gaps; and then the absence of any division into Books or Parts in a treatise of 1400 pages—for this is precisely what the two volumes reach—still further diminishes at least the appearance of systematic arrangement. As this is very near fault-finding, I may as well add that the detailed treatment is not altogether what one looks for in a weighty treatise. Prof. James has the turn for apt telling epithet and vivid imaginative colouring which characterised G. H. Lewes's philosophical writings. Nobody would be less disposed than the present writer to resent the introduction into psychology of a little imagination, or, for that matter, a spice of humour. Our author, moreover, as his readers know, is particularly happy in his illustrations and his verbal inventions. All this is something to be grateful for, and yet one is disposed to wish that there were now and again somewhat less of it. The vividness of impression obtained by a smart descriptive epithet may be purchased too dearly if its

dazzling effect blurs the sharp boundaries of scientific thought. Again, Prof. James is exhilaratingly vigorous in his controversial moods, which are by no means infrequent. He sets aside the crudities of a reigning English philosopher with all the delightful *insouciance*, the naïve egoism, of a boy. For this ingredient of rollicking defiance of the authorities, again, the reader of many dull psychologies may well be thankful, and yet he may wish here and there for just a *souffçon* of the old spirit which has prompted mankind at all stages of culture to pay reverence to ancestors. One other point and our fault-finding will be over. A writer so well qualified by experience, scientific training, and reading, as well as by the possession of the most facile of pens, to write his own book would have done well not to let others contribute quite so much to his pages. The appearance of several pages at a stretch from works so accessible as Dr. Carpenter's *Mental Physiology* strikes one as an interpolation into a masterly and original treatise of an unworthy element of 'padding'. Such quotations may have had their justification in the original articles written for the general reader, but they, together with other popular features, might with advantage have been ruthlessly cut down in the treatise. Perhaps, however, all this will strike Prof. James as excessive stickling for conformity to conventional pattern. What seem faults to the exacting critic may after all turn out a boon to the student who is not enamoured of psychology and will only be too grateful to anybody who enlivens the subject for him. There is no doubt that our author has done this. Long and elaborate as are some of the chapters, they afford for the most part excellent reading. It is certainly not a conventional text-book: it presupposes a previous mastering of conventional text-books; and it promises to those who have accomplished this part of their course a delightful transition of consciousness, in which will be no room for any idea of text-book, examiner, or other unpleasant subject of the kind.

In spite of the absence of continuity of structure the two volumes are, in a measure, unified by being the product of one and the same strongly-stamped individual mind. Prof. James is before everything else original—energetically, aggressively original. He must see things with his own eyes, and woe to the man who comes between those eyes and their object. This, I take it, is the deepest source of charm in all his writings. The freshness, the force, the wholesome contempt for other men's work when this takes on the aspect of mere lumber, all this is admirable. Our author has the magical power, given to the very few, of recreating his subject. The much-tormented human mind loses its dull, worn look in his hands and becomes alive again. This, again, is partly due to a rare combination of analytical and imaginative power, the gift of showing us the constituent factors without destroying the concrete wholeness and shapeliness. Here, too, the author reminds one of Lewes, whose mind was

at once scientific and literary, and who had a salutary dread of the destructiveness of analysis when pushed *à outrance*. The treatment throughout the volumes illustrates this happy combination of distinct gifts. The writer is acute and penetrative in his analysis, discriminating what others confuse, as when he refuses to accept two successive ideas representing the same object as "the same state of mind". Sometimes, indeed, he seems to carry his love of fine distinction to the point of excess. Yet he does not rest in such abstract distinctions. It is after all the warm, palpitating mind that he loves, and his subtlest analysis, like the young sculptor's study of the anatomy of the human body, has for its sole end a fuller and more faithful presentment of the living organ. Nothing is finer in this work, nothing more useful, than the attack on what may be called ultra-atomism in psychology, the doctrine that the living flow of consciousness can be cut up into sharply distinguished 'states' or constituent 'elements'. This attack may, perhaps, be regarded as the psychological counterpart of Lewes's assault on the superstition of the central nerve-cell, the notion that the single ganglionic cell yields its own distinct element of consciousness. It is this wise observance of the limits of psychological analysis, this jealous regard for the rights of concrete fact, which justifies to so large an extent the quite unique style of the exposition. Prof. James has managed to write a large, and on the whole admirably clear treatise on psychology, with the least possible aid from the technical language of the subject. Nothing more unlike the artificial-looking psychologies of Herbart and his school can be found than the contents of these volumes. On the other hand, the language employed is strikingly original. Many new distinctions are baptised here, but always with native, homely and communicative names. The wealth of simile, of happy turn of phrase to a new use, the frequent tracking out of psychological principle into the haunts of the vulgar and the pages of general literature, all this makes the book delightful and captivating. Our author may be sure of one thing: his book will live, if only through the charm of its literary expression, when most text-books lie dusty and forgotten.

Coming now to the characteristics of the psychologising here illustrated, we find, as might be expected, that Prof. James does not lend himself to an easy process of classificatory 'ticketing'. In the main he may be described, perhaps, as eminently positive and empirical in the respectable sense of this term. His theorising is from first to last grounded on fact. He is a generous consumer of all the psychological wares that the new physiological and psycho-physical factories can turn out. The same keen scent for fact leads him to welcome the now well-known observations of Frenchmen and others in the domain of hypnotism. He would probably be taken by the unwary reader for a physiological psychologist *pur sang*, so full and so constant

is the reference to neural processes. Yet with this positivism, this instinct for careful observation of fact and rigorous verification of theory, there goes a no less distinct streak of mysticism. Hard and praiseworthy as is our author's effort to bar himself within the limits of psychology proper, he cannot forbear taking a peep now and again into the metaphysical region. He has, as he admits in a deliciously humorous way (i. 180), a sneaking fondness for the old-fashioned "soul" in psychology, and, as we shall see, he is not going to let any new-fangled ideas of psychophysical parallelism displace it. The mysticism appears more plainly in the whole doctrine of effort and free-will which, as the author would probably be the first to allow, is as much an æsthetic or ethic postulate as a psychological assertion. Yet this Lotze-like leaning to a teleological view of things is on the whole kept in praiseworthy subjection to properly scientific aims, and a man must have the smallness of a pedant to object to the occasional intrusion of a hint of large vistas beyond. That our author is more than a remarkably able psychologist, that he has something of the many-sidedness of all great minds, is a fact which should excite nothing but admiration.

With this general account of the book and its characters, we may glance at some of the more important matters it deals with. A detailed reference to all points of interest is of course out of the question, and an effort will be made to select what is new, characteristic, and promises to have permanent objective value.

A short, far too short, chapter on the "Scope of Psychology" leads on to an excellent *résumé* of the principal facts respecting the "Functions of the Brain". The chapter is illustrated by some good drawings. Yet one cannot help feeling as if this were a chapter torn out of a physiological work. If an account of nervous structures is to appear in a text-book of general, as distinguished from *physiological*, psychology at all, it should be complete in the sense of taking in the neuro-muscular apparatus. But any account of so complicated a set of structures adequate for descriptive purpose requires, as we know, considerable space, and the question arises whether it is not paying more respect to physiology as well as being fairer to the student to send him to one of those detailed expositions which can so easily be got in this age of text-books and encyclopedias. In the present state of neurological science the psychologist would, I think, do well to avoid everything like a descriptive account of the nervous system, and to confine himself to a bare summary of the more important results of anatomical and physiological research so far as these have a plain bearing on the understanding of psychical processes, a bearing which he means afterwards to illustrate. The chapter on the Functions of the Brain is followed by one on "Some General Conditions of Brain-Activity," in which there is a pretty complete account of reaction-time. The chapter as a whole, however, has a certain jerkiness, and the section "Phosphorus

and Thought" looks as if it were thrown in as a sensational diversion. A chapter on "Habit," highly anecdotal, and perhaps the least original in the work, leads on to a rejection, much in the manner of Lewes, of the "Automaton-theory". Here we get some smart hitting of the gentlemen of the laboratory, one of whom once said in the author's hearing:—"It is high time for scientific men to protest against the recognition of any such thing as consciousness in scientific investigation". Clever as is the argument here, it does not strike me as altogether convincing. It is no doubt quite pertinent to remind the modern anatomist that he cannot at the same time object to psychic causation as unintelligible and dogmatise "about *material* causation, as if Hume, Kant and Lotze had never been born". That is, he must be either "impartially *naïf* or impartially critical". Yet an idealist-anatomist of the Huxley type might retort that the non-recognition of a causal efficiency in psychical states is in his case at least the result not of any lingering attachment to an occult nexus, but of the acceptance of positive scientific facts. In other words, he might say:—"What you psychologists call a mental process I regard as a psycho-physical, and the highest generalisations of physical science tell me that in every material process each phase is adequately determined by previous phases. I do not want your consciousness as agent since I have in the stream of molecular action which is never interrupted all the needed conditions for explaining a purely material process such as you allow muscular contraction to be." It is more to the point to suggest *how* consciousness can assist in the case. This Prof. James accordingly tries to do. Consciousness, he tells us, is needed in order to modify the monotony of action of the brain-machine by "loading its dice" so to speak. This is to say that the diversity of brain-action is not explicable by the complexity of brain-structure and the laws that govern neural processes. But this is surely the very point that requires establishing, and our author cannot be said to have made any serious attempt to do so. It could only be done by a very careful examination into the mechanics of nervous action. Altogether this chapter does not impress me as a strong one, interesting and suggestive though it undoubtedly is. The question is left pretty much where it was, with the subjective consciousness of power on one side and the largest generalisations of physical science on the other, refusing to come to terms, and requiring the judicial intervention of the metaphysician.

With the next chapter, on "The Mind-Stuff Theory," the transition to properly psychological matter may be said to begin. It is vigorous with all the author's iconoclastic vigour. Poor Mr. Herbert Spencer comes in for the heaviest blows here. His peculiar use of the term 'nascent' for the purpose of smuggling in a new factor, as consciousness, in the series of evolutionary events, arouses our doughty knight's fiercest ire. It is true that Mr. Spencer has said that in tracing the gradual emergence of

conscious life he is offering no philosophical account of the nature and production of consciousness, and Prof. James refers to this explanation. All the same he holds by his charge that Mr. Spencer is trying to explain the origin of consciousness. It may be allowed that Mr. Spencer is not always as careful as he might be in distinguishing the psychological from the philosophical point of view. Nevertheless his critic seems in the present case to be a little unfair, and the smart reference to the "very small" outcome of feminine fault in *Midshipman Easy* looks very like a missing of the mark. But Mr. Spencer will no doubt take care of himself in this matter. More satisfactory is the examination of the mind-stuff theory in its psychological bearings. Here the author brings out his view of psychical fusion and analysis. To him a psychical product is not made up of the elements from which it can be shown to be derived. It is something new. He seems to approach here the idea broached by Stumpf in connexion with the analysis of clang, *viz.*, that psychical fusion is the correlative of a unification of nerve-processes. But the author's whole theory of psychical development is only vaguely defined, and one cannot but regret that he did not see his way to a careful examination of the subject in connexion with psychological method. This last (under the title "The Methods and Snares of Psychology") forms the topic of the following chapter, which, however, is very slight and incomplete. The chief new features in it are the following. First of all, Prof. James proposes to use the terms *thought* and *feeling* indifferently as generic terms for all sorts of psychical phenomena. Of this I can only say that it seems admirably fitted to render the existing confusion, in respect of psychological nomenclature, worse confounded. A second point is the very doubtful assertion that "psychologic science" treats not merely of subjective "thoughts," but of "their relations to their object to the brain and to the rest of the world" (i. 197). Lastly, he draws a sharp distinction between the object of the thought in B's mind, the mind studied, and the object of a like thought in the mind of A, the psychological observer. According to our author, the psychologist's fallacy consists in supposing that B's thought knows its object as A knows it. All this is important, though it seems to have more philosophic than properly psychologic significance. But then, as we have just seen, Prof. James includes "objects" of thought in the subject-matter of psychology, and this view of the dualistic standpoint of the psychologist is further insisted on in the following chapter, entitled, "The Relations of Minds to other Things". The invention of this heading, by the by, is a stroke of genius; for, to the common mind, it would seem impossible to group things so diverse as the continuity or interruption of consciousness, the seat of the soul, the relation of subject and object in cognition, under a single title.

In the next chapter, "The Stream of Thought," a good part of which has already appeared in the pages of *MIND*, we come to

purely psychological discussion. Here we see our author at his best. What Hobbes and Bain had done in one direction, *viz.*, to show that all mental experience is change, or a process of transition, Prof. James carries out in other directions. He rejects all the modes of psychologising, English and German alike, which regard, or seem to regard, mental life as divisible into distinct states. There is a "transitive," as well as a "substantive," factor, or aspect, in all our consciousness. The former is a particular mode of feeling. Thus there is a particular feeling, not only of before and after, side by side, but of "if" and of "and". This doctrine is opposed, not only to that of the Atomistic Sensationalist, who overlooks relations altogether, but to that of the Intellectualist, who views relations as imposed by thought on feeling. The true account of the matter is, that ideas of relation, like those of quality, are based on peculiarities of "feeling". In all this Prof. James seems to me eminently right. As we shall see, he makes excellent use of this idea of "feelings of tendency," or "psychic fringe," when he comes to take up the subject of general ideation.

The chapter on "The Consciousness of Self," is a shade too popular perhaps for its surroundings, but is excellent reading. Here we have dealt with side by side the idea and the feeling or emotion of Self; a circumstance, which, even if irregular (for nothing has as yet been said about the emotions), obviously gives the writer a great advantage. One might object, perhaps, that the resolution of the (Empirical) Self into the Material Self, the Social Self, that is, the Self as recognised by others, and the Spiritual Self has the look of a cross-division; but the author might possibly justify his bold innovation. The Spiritual Self is conceived of, not too clearly perhaps, as central spontaneous activity, which is first of all referred to the head, and then more courageously is resolved into a collection of peculiar motions "in the head or *between the head and throat*". The question of Personal Identity is dealt with in this chapter, but with less originality. The irrepressible "Soul" springs up again in this chapter too, though the reader may have fondly hoped that that ghostly entity had been effectually laid.

The chapter on "Attention" has more the look of a chapter written for a text-book. It is a good *résumé* of the facts and theories. Prof. James considers that attention involves a double neural process: (1) the accommodation or adjustment of the sensory organ, and (2) "the anticipatory preparation from within of the ideational centres concerned with the object to which the attention is paid". This seems to me sound, and a decided improvement on so one-sided a view as that of Prof. Ribot. When, however, he says that the only third process he can think of is inhibition of irrelevant movements I am surprised. So well read a student of psychology might surely have referred to the possibility of a vaso-motor factor in all states of attention.

The chapters on "Conception" and "Discrimination and

Comparison" (an odd sequence some will say) are particularly good. Conception is for our author "the function by which we identify a numerically distinct and permanent subject of discourse". What he is at most pains to bring out is that this logical sameness does not involve psychological sameness (? indistinguishableness) in the ideas employed. These may and do vary indefinitely. Psychologically the conceptual consciousness, the feeling of sameness, is a "fringe" or tendency accompanying the particular idea; and this view of tendency is applied with good effect to elucidate the nature of "general" ideas. The most remarkable feature in the account of Discrimination is a theory for explaining the improvement of this power by exercise. This our author supposes to take place in two ways: (1) by the different things taking on disparate associates, and (2) by the differences reminding us of larger differences. In other words, I go on improving in the discrimination of wine-flavours partly because the first unobserved differences become accentuated by the addition of obvious associated differences, those of name, appearance, &c., and partly because after observing a broad difference I can bring a smaller under this and assimilate it. This last idea is ingenious, and suggests a new relation between discrimination and assimilation. It wants, however, to be more fully developed.

The chapter on "Association" (previously published in the *Popular Science Monthly*) is of real scientific importance, and deserves a careful examination. All that can be said about it here is that it seeks to get rid of Similarity as a separate principle, and tries with considerable ingenuity to exhibit the central nervous process in association. With respect to his view of Similarity the author strikes me as not quite consistent. In dealing with Similarity under association he writes after the manner of Dr. Ward, as if all Similarity were resolvable into partial identity (*i.e.*, indistinguishableness). Yet in other places, as in his account of comparison (previous chapter), he seems to follow Stumpf and to hold that there may be likeness *without* partial "identity," a position he quite unambiguously takes up later on (ii. 209) when he points out that analogies of sensation (*e.g.*, "sweet tone") need not involve any compositeness of sensation and partial "identity".

The chapter on "The Perception of Time," also a reprint, is a full and interesting account of the time-presentation in the light of recent experiment. The two chief points here are, first of all, the sharp discrimination of a time-perception, or perception of a 'specious present' from the representation of past and future time; and secondly, the attempt to define the neural conditions of the time-consciousness in the "overlapping" of brain-processes. The author does not, I think, succeed in showing why the psychical correlative of such overlapping neural processes should fall into the particular form of a succession, or why, supposing a consciousness or "form" of time given, the overlapping should determine a particular time-order, *e.g.*, the

sequence AB, rather than BA. A simultaneous running on of different brain-processes is, on a consistent psycho-physical view of mind, a condition of all unifying or relationing consciousness, whether the relation be spatial, temporal, or one of likeness or difference. It is, of course, only so far as such overlapping brain-processes show differences *from moment to moment* that they can be of any use as determining factors in the production of the time-perception. In other words, it is only successive experiences which can yield the peculiar time-consciousness. It seems odd that the author did not here call in the help of his "fringe"-theory, and point out that all successive sensations or other mental contents carry with them in their "transitive" aspect the distinguishing *quale* of our time-consciousness. Time, in other words, is known, not by help of any overlapping brain-processes, or by any mystic interplay of ideas, but by a unique mode of consciousness, closely connected with that of change, which runs all through our mental experience. The definite persistence of sensations as after-images is, of course, an important element in giving a special definiteness to the consciousness of time-order or sequence in the case of all short series.

We must pass by a chapter on "Memory" which contains little that is remarkable, also the following chapters on "Sensation" and "Imagination," and come to the next two chapters on Perception, *viz.*, "The Perception of Things" and "The Perception of Space". The order of treatment here is strange-looking enough, and seems in one place to have puzzled the author himself, when, in dealing with the first aspect of perception, he writes, "as we have seen in studying Space" (ii. 101). There is, no doubt, some advantage in discussing the perception of material reality before taking up the space-perception. But our author does much more, and seeks to explain the perception of size, and the illusions of perception in general, before coming on to the space-perception; an arrangement which must, one is strongly inclined to suspect, have grown out of the piecemeal mode of production of the book.

The chapter on space-perception, reprinted from *MIND*, runs to just 150 pages, and is a remarkably full and vigorously reasoned presentment of the perplexing question. Prof. James starts with a "sensational" space (sensation even as distinguished from perception is cognitive for our author), or a feeling of bigness, which involves space in three dimensions, and is illustrated by the volume or bulk directly heard when there is a buzzing in the ears. Here he seems to go distinctly beyond Mr. Ward's primitive 'extensity'. This vague undifferentiated space-consciousness becomes definite by experience which serves to break up the primal bigness into distinguishable positions and dimensions. This definite sense of position, again, is reached by differentiating and rendering more distinct the local feelings connected with the stimulation of particular parts of the sensory surfaces (skin,

retina, &c.). Movement assists in the process of development, not by adding a new order of muscular sensation, but only (so far as I understand the writer) by first of all bringing out or sharpening the cutaneous or retinal local differences (for, as we know, movement over the skin makes the successive feelings of positions vivid through the element of change and freshness which it introduces), and secondly, by supplying an additional group of surface local differences, *viz.*, those in the surfaces of the joints which slide one over the other when the limb is moved. This, without going into the special complications of visual space, is in its main elements Prof. James's theory. It insists on the originality of the space-quality as a sensational element. It denies any power in movement and motor-sensation to suggest or even to contribute a new element to the space-consciousness. In order to give the *coup de grace* to the Bain-Wundtian theory it makes a clean sweep of the 'Muscular Sense,' denying its existence and resolving the so-called Muscular Sensations into surface and *quasi*-tactile sensations.

So well-planned and well-executed an attack on current doctrines deserves and will, one hopes, receive a more special examination than it has yet received in MIND, where it was first delivered. Here I can only record my own impression that, strong, masterly, as it undoubtedly is, particularly full as is its presentment of facts, it is after all far from being an exhaustive or even an impartial discussion of the question. In his eagerness to make out a simple intelligible view the author has failed, I think, in places to do justice to the complexity, to the ambiguous significance, of the facts. One striking omission is that of nearly all reference to the observation of children, with which must be taken the bare mention of the now celebrated cases of Cheselden's patient and others (ii. 210). Indeed one cannot help being struck with the fact that throughout this discussion the writer seems to argue uniformly from an examination of the space-perception in our *mature minds*, thereby making us recall his own warning in vol. i. not to fall into the "Psychologists' Fallacy," *viz.*, of confusing our (psychological) standpoint with the fact to be observed. Again, the whole view of the rôle of movement in the development of the space-consciousness strikes me as hardly less than perverse. A good deal of the argument acquires all its appearance of point by the complete ignoring of the fact that movement in empty space, as in describing a horizontal line or a circle with the forefinger, gives a clear and definite spatial (linear) consciousness. This of itself completely answers the laboured argument that the effect of movement is wholly indirect, by giving greater vividness to the local differences of the surface touched. The theory of Goldscheider and the author that resolves motor sensations into articular-surface sensations seems to be beset with difficulties. Among other queries that occur to one are the following:—Do two sensitive surfaces, one

sliding over the other, give the requisite conditions of exact measurement of spatial dimension? Rubbing one hand on the other gives, so far as the surface-sensations are concerned, in my own case, the vaguest idea whether of extent of movement or area covered. I do not understand how fine local discrimination by the system of joint-surface points, such as is required by the theory, could be developed in this way. The experiments on passive movement of Goldscheider quoted by our author, formidable as they look when directed against the "outgoing current" theory, seem to prove too much. Even Münsterberg, *facile princeps* among the latest simplifiers in psychology, allows that passive movements involve less contraction of the muscular fibres than active. One is tempted to ask here, moreover, how, if the sensations of the articular surfaces are the whole content of the muscular sense, we come to distinguish at all our own movements from those passively induced. Does Prof. James go so far as to say that the idea of a movement, if it were to be followed by a passive form of the corresponding movement, would give us precisely and *immediately* (apart from an illusory effect which might readily arise in so exceptional an experience) the active consciousness that we have in contracting our own muscles? Another question one would like him to answer is how on the articular-surface theory he explains the measurement of distance by *ocular* movement under circumstances where local differences of retinal points seem to play at most a very subordinate part, as in sweeping the eye from one star to another and distant one? He can hardly say it is the sliding of the eye-ball on the surface of the orbit; for, if the sliding of sensitive surfaces were the real source of the perception here, one would expect the measurement of ocular movement to be more exact when the lid is down, and so the surface-sliding increased, whereas, as he himself points out, it is particularly vague in this case. One may add, however, that on the whole the account of visual space, though a little too polemical in tone, is excellent, and illustrated by a good number of helpful drawings. The writer is particularly happy in showing that in our perceptions of form, distance, &c., we select a particular "visual reality" answering to dominant, practical want or æsthetic preference. While, however, he thus succeeds in making out that visual perception involves reference to past visual experiences, he does not, I think, do justice to the extra-visual references implicated. This is particularly true of the visual perception of the third dimension. This, as follows from what has been said, is, according to the author, implicit in the primitive visual "bigness," but he fails, I think, to make out how the "sensation" of distance is organically or anatomically conditioned.

The rest of this deeply interesting book must, in recognition of the finiteness of editorial space, be dismissed with a word or two. The chapter on "The Perception of Reality" or Belief, also a

reprint from *MIND*, is full of suggestiveness. The account of "Reasoning" is valuable through its emphasising of the practical moment of "sagacity," or the picking out of essential characters by the assimilation of which we are able to draw inferences. The list of human Instincts, which, according to our author, greatly transcends the number of animal instincts, looks a little arbitrary, and one is half disposed to ask irreverently, Why not include an instinct of standing on one's head, which is a strong and apparently unlearned tendency in certain boys—Quilp's, for example? The account of Emotion, as essentially and mainly the reflected result of bodily movement and reflex organic change, is now well known, and the student will be glad to have it accessible. I believe it emphasises, to the point of exaggeration, no doubt, an important and inadequately recognised factor in our emotional states. In connexion with Emotion, by the by, one must not forget to point out one of the great gaps in the book. There is no attempt to define and to place in the scheme of mental life the phenomena of Feeling as a whole. A single chapter on "The Emotions," and on these mainly as instinctive movements in a ponderous treatise on Psychology, is nothing less than a cruel 'cut' to the sensitive side of our poor human nature. The account of Will is to be noted for its attempt to explain, somewhat in the manner of Münsterberg, how ideas of movements arise and become the psychological antecedents of actions. Here, again, we have elaborate psycho-physical hypotheses, and an ingenious attempt to interpret central nervous action by the idea of drainage. But the explanation is not quite clear to me. Special exception might here be taken to the curt and inadequate treatment of pleasure and pain as movement-prompters.

The work concludes with a chapter on Hypnotism, which shows first-hand knowledge of facts, and patient thought on the subject; and a closing chapter, headed "Necessary Truths and the Effects of Experience," which is far more philosophy than psychology, and looks very much like a 'job lot' at a sale into which the author has tumbled a number of matters he has not been able to deal with elsewhere. One closes the covers with a feeling of psychological "bigness," a sense of the vast stretch or swell of conscious life into which the movements of psychological thought are only beginning to introduce definite divisions. This feeling does not come from any indefiniteness in Prof. James's treatment, but, on the contrary, from his praiseworthy eagerness to reach definiteness. For, however it may be in the region of physical space, in that of psychological vastness it is only as we begin to establish definite divisions or distinctions within the whole that this whole itself, as a dim unexplored bigness, is perceived at all. May our author, aided by other vigorous workers on his own side of the water, go on subdividing and subduing the formless void!

JAMES SULLY.

The Development of Theology in Germany since Kant and its Progress in Great Britain since 1825. By OTTO PFLEIDERER, D.D., Professor of Theology in the University of Berlin. Translated under the Author's supervision by J. FREDERICK SMITH. London: Swan Sonnenschein & Co. Pp. xii., 403.

The aim of this volume is to describe that *positive Aufklärung* or rationalistic movement which begins with Kant, and which forms so marked a contrast with the sceptical Rationalism of the last century. The result of the latter was, at least in relation to Theology, purely negative: for, as it extended the method of physical science to everything, and thereby established a thorough-going inter-connexion of the phenomena of nature, which left no room for the supernatural, it excluded theological truth in the form in which it had hitherto been received by religious men generally with the exception of a few mystics. The new Rationalism, on the other hand, while accepting this negative result as regards the miraculous form which had been given to spiritual truth by the imagination of the past, attempted to find a basis in reason itself for all that was essential or valuable in the ideas expressed under that form. It attempted, in short, to show that the content of religion, and particularly of the Christian religion, is capable of surviving the form which is destroyed by criticism. And it even maintained that that content rests upon principles which are implied in all scientific knowledge, and which are necessary to its final interpretation.

The development of this new or positive Rationalism is perhaps the most important intellectual movement of this century. We are not, indeed, as yet in a position to determine finally what will be its results, either in destruction or in reconstruction; but we can see its enormous transforming power in relation to theological belief. And no one can read the present volume, in which we have a rapid but comprehensive sketch of the history of the whole movement, both in Germany, where it originated, and in England, the country which was latest to be affected by it, without gaining a new sense of slow but inevitable character of its advance. In Germany especially the systematic progress of the militant idea, in spite of all temporary reverses, to a conquest of the whole field of thought has something of the aspect of a planned campaign, and might almost be said to supply a new link to the demonstration of the philosophical principle that the "rational is the real". The first stage of it was the specially *philosophical* movement, which commenced in the Critical Idealism of Kant, and was brought to clear consciousness of its own meaning in Hegel, with whom Dr. Pfleiderer justifiably concludes his short sketch of that movement. It is true that the recoil from Hegel, which is associated with the neo-Kantian revival, and the belated success of the philosophies of Schopenhauer and Herbart, as well as the various attempts at compromise which have been made by writers like Lotze, Wundt, and Hartmann,

have done much to throw light upon difficulties which were overlooked or imperfectly echoed in the first enthusiasm of the new Idealism. But though such discussions have helped to a clearer understanding of the nature and limits of what has been achieved, and in some measure perhaps to the opening up of new questions which it has left unsettled, it can scarcely be said that in *principle* there has been any *Epoch-machende* advance since Hegel. The real advance has been rather in the application of principles, which had been discussed and vindicated in abstract by philosophy, to the history of human thought in the past and those beliefs and institutions of the present which have been the result of that history. This application has, of course, revived all the divisions and debates of the philosophical schools; but it has revived them in a form more apprehensible to the general mind, connecting them with the details of historical and Biblical criticism and with urgent questions of belief and practice. In this volume Dr. Pfleiderer gives us the means of tracing this connexion, when he follows up his exposition of the philosophical movement by showing how the impulse thence received has gradually transformed, first the systematic treatment of Dogmatic Theology, then the methods of interpretation of the Old and New Testament, and finally the whole view of the religious history of the world, and especially of the Christian Church.

It would carry us beyond what is possible in a short notice to attempt to follow Dr. Pfleiderer into the details of a movement which, besides, lies somewhat beyond the province of a philosophical journal. I shall, therefore, content myself with two remarks: one in appreciation, and the other in criticism, of what he has done. In the first place, his account of the influence of Philosophy upon Theology renders it abundantly clear that in this relation the succession from Kant to Hegel should be traced rather through Schleiermacher than through Fichte and Schelling, neither of whom had any great *direct* influence upon Theology. Kant's ethical works, and especially his treatise on *Religion within the bounds of mere Reason*, opened the way for a rational reinterpretation of Christian doctrine: but the abstract and objective manner in which he expressed the new principle made his effort to apply it to Christianity appear too much like an external accommodation—the investment of idealistic morality with an ill-fitting dress of theological phrases. In order that the transforming process should be effectual, it was necessary that it should begin, so to speak, from the opposite end. And Schleiermacher, if not exclusively, yet in a higher degree than any other of the great philosophical writers of his time, had the qualification that he was first a Christian and only in the second place a philosopher, *i.e.*, that he started with an intimate experience of the spirit of Christian piety at its best, and that he was not disposed to yield any element which he felt to be essential or even valuable in life to the exigencies of abstract theory. Hence, while in

obedience to the idealistic principle he freed himself at a stroke from all the details of miracle and supernatural interference, his fear of a rationalistic evaporation of Christianity made him cling all the more closely to the idea of the archetypal originality of Christ, treat Christian doctrine as the reflective interpretation of a unique consciousness awakened by him in the Christian Church, and refuse to regard the opposition of Church and world as one which was destined to pass away. (See Dr. Pfeiderer's chapter on this subject, pp. 103-130, which is one of the best parts of his book.) These things explain the preponderant influence which Schleiermacher has exercised within the Church upon the theology of those whose religious life was most deeply rooted in traditional Christianity, but who were willing to admit the necessity of Rationalism in regard to everything but the one exceptional fact or principle which they regarded as essential. Hegel, on the other hand, in spite of his almost ostentatious acceptance of Christian doctrine as, in *essence*, the expression of philosophical truth, has been regarded with more suspicion or even sometimes denounced as an enemy. But the real difference between him and Schleiermacher is that he regards Christianity as itself an essential product of reason, and indeed as that form in which reason first, so to speak, defined to itself its own nature, or brought that nature to self-consciousness. Accepting, therefore, in the literal sense, the *anima naturaliter Christiana* of Tertullian, he could admit that Christianity should take its place with other religions in the natural process of development without claiming for it any exceptional position of *Urbildlichkeit*, while, on the other hand, he had the confidence that no change of form, produced by the free application to it of the idea of development, could be fatal to its essential truth.

The main criticism I should make on Dr. Pfeiderer's work is one which he has practically made upon himself, when (p. 154) he declares himself an Eclectic. Whether it be true or not that in theology "in a much greater degree than in philosophy systematic unity can never be more than an approximately attainable ideal," it is at least a doctrine *acquiescence* in which is dangerous to the theologian who admits it. He who confesses himself an Eclectic is too apt to become wavering and uncertain in his point of view. It has sometimes occurred to me that Dr. Pfeiderer might be described as an Idealist in his attitude to all other systems except Idealism itself, the bold statement of which seems to frighten him. Thus no one could object to his criticism of Hegel's tendency, especially in his later days, to give the most conservative possible interpretation of the idealistic principle. But when Dr. Pfeiderer tells us (p. 72) that the principle itself—the principle that "the real is the rational and the rational the real"—is a justification of the *status quo*, he is, one might fairly say, speaking to the gallery. Surely, if Dr. Pfeiderer's book proves anything, it proves that that doctrine is only not the

most revolutionary of all doctrines, because it is the very principle of all progress which finds the roots of the future in the present.

The last part of Dr. Pfeiderer's book is directed to the history of the rationalising movement in England from the time of Coleridge; and it is somewhat curious that the first attempt to give such a history should be made by a German writer. In this part of his work Dr. Pfeiderer is on less familiar ground, yet it is wonderful how well he has been able to take his bearings in the new region. Accustomed to the more systematic habits of German thought, he has sometimes brought to writers like Seeley and Arnold, and even to Carlyle, the demand for a more definite and thoroughly developed theory than they can supply; and his estimate of their power is somewhat unduly depressed by the nature of the standard he applies to them. At the same time he has produced an interesting and instructive sketch of the general movement, and his characterisation of the many individual writers is luminous and suggestive. I may refer specially to his remarks upon Newman and Maurice.

EDWARD CAIRD.

The Scope and Method of Political Economy. By JOHN NEVILLE KEYNES, M.A., University Lecturer in Moral Science and late Fellow of Pembroke College in the University of Cambridge, &c. London: Macmillan & Co., 1891. Pp. xiv., 359.

It may sometimes happen to a reviewer to meet with a book with which he finds himself in entire agreement. Whether such an occurrence will be altogether joyful is a question of some delicacy. There is something not unpleasing in the errors of our allies. We like to point out to them the better way; and our personal identity seems to demand some difference of opinion about it. Besides, that a book should deserve unmitigated praise is improbable *a priori*, and a cultivated literary taste rejects every kind of monotony. However, for the present reviewer such an hour of acquiescence has arrived.

Hitherto the fullest and best-known treatise upon the scientific character of Political Economy has been Cairnes's. It is true that this work added little except illustrations to the view presented by Mill in his *Unsettled Questions* and in the sixth book of his *Logic*. But the illustrations were so telling, the style was so luminous and persuasive, that it was deservedly recognised as a sort of authoritative manifesto of the school of economists at that time almost entirely predominant among us: the school which regarded the method of investigation and proof in Political Economy as nearly confined to the direct-deductive or 'Physical' method. The very fact, however, that Cairnes wrote before this doctrine had been very powerfully assailed or

widely disputed now renders necessary a new and more comprehensive survey of the whole question. The New Political Economy, the German School, the Inductive or Historical or Empirical School, by whatsoever name it may be known, has taken the field in force and put our traditional opinions on the defensive. Hence the present work was very much needed, and it is difficult to see how it could have been better done.

Mr. Keynes's book is by no means written in opposition to Cairnes's. It bears indeed much the same relation to its predecessor that Prof. Marshall's *Principles of Political Economy* bears to Mill's treatise: developing and enriching its ideas, modifying and adapting them to the present state of knowledge and research, by no means rejecting them. Its characteristics are a fuller consciousness of the relations in which Political Economy stands to other sciences, psychological, sociological and physical, and to the arts or practical sciences of ethics and politics; a stronger sense of the need of rendering it concrete, and of bringing it home to the special circumstances of different ages and nations; a recognition of the importance to these ends of historical and statistical knowledge; and at the same time a scientific appreciation of the assistance to be derived from mathematics. In short, there is nothing one-sided about this book. Mr. Keynes has taken account of all schools and of all good authors, both at home and abroad, and has made a just allowance for whatever truth there is in their several teachings, whether they have a clear conception of their own meaning or only blunder round about one.

It is perhaps strange that a belief should still widely prevail that deduction and induction are opposed methods of scientific research, but it seems to be too true. Our author, though too polite to say so, cannot help letting it appear that some who have expressed strong opinions upon economic method have supposed that a record of facts is induction, or that a miscellany of empirical laws is science (ch. ix.). The conception of Political Economy as a merely historical science turns out upon examination to be hopelessly vague and destitute of contents. To deny that there is any such thing as Economic Science is a bolder position, and has the advantage of rendering any discussion of its method superfluous.

On the other hand, those economists who have had the clearest conceptions of scientific method have not always applied them successfully to their own study. This was the case with Mill and Cairnes (ch. i.), who dwelt too exclusively upon the claims of direct deduction and verification, overlooking cases in which in their own treatment of the science induction took the lead. The greater part of Mill's treatment of Production is inductive (as Prof. Sidgwick has pointed out), and even in his book on Distribution the chapters on various forms of land-tenure and much of the four chapters on wages have the same character. In fact,

hitherto our representative writers on the method of Political Economy, though they have themselves been amongst the most enlightened and instructive of our economists, do not seem to have deliberately asked themselves, What really is our method?—but to have adopted too submissively the indications of general methodology, especially as illustrated by the reasonings of Ricardo's principal treatise. It is no wonder then if an author, dissatisfied with their system, regarding it perhaps as too narrow in its basis, or wanting in direct applicability to particular countries, should take them at their word as to the nature of their method, and should thereupon attribute to the insufficiency of that method whatever shortcomings he felt or imagined in their system. This might easily lead to a demand for inductive as opposed to deductive procedure, and for historical instead of hypothetical illustrations. And an opposition once formed, its more violent partisans would forget (if they ever knew) that in Mill's view deductive method is matter-of-fact to the core, derives its premisses from observation, and by observation verifies its conclusions, and that neither he himself nor those in agreement with him had any disregard for history or for contemporary experience.

Yet, as Mr. Keynes shows us, the more moderate members of the so-called historical school, such as Roscher and Wagner, do not reject deduction. There is no fundamental opposition between them and Mill in respect of method, but merely a difference of more or less in relying upon ratiocination or upon observation. This is particularly the case if in comparing these authorities we attend not merely to what they say about the right procedure, but to how they proceed. He points out, therefore, the superficiality of contrasting an 'English' with a 'German' school; as if Adam Smith and Malthus were not inductive enough, as if the historical method had not distinguished adherents in England, or as if the deductive method were foreign to Germany. Surely nothing could be more unsuitable, more suspicious, I may say more ludicrous, than such a use of geographical or political epithets for scientific distinctions. It marks the fanaticism of partisanship when patriotism or anti-patriotism is summoned to stimulate the rage of scientific controversy. By professing adherence to the 'German school' a man may indeed earn the praise of that sort of impartiality that exults in undervaluing one's own countrymen, who happen also to be one's nearest rivals. But what can any disinterested spectator think of the state of that science in which such terms are possible? We do not now hear of German Algebra, nor of German Chemistry (I believe); though we do sometimes of German Metaphysics, *et cetera*. Such are the epithet's associations.

As to the Historical Method, there are passages in the sixth book of Mill's *Logic* which deserve more study than the historical school seems to have bestowed upon them, and which at the

same time help one to understand how this method should have come to be considered antagonistic to Mill's conception of Political Economy. In ch. ix., discussing the Direct, or Physical, or Concrete Deductive Method, he describes it as especially adapted to the investigations of Political Economy, since the desire of wealth has in industrial and commercial affairs such predominance over all other motives as to furnish the science with a commanding first principle. Starting from this the inquirer may deduce consequences which, if verified by comparison with the facts of history and contemporary experience, may be taken to be laws of nature. He then proceeds in ch. x. to discuss the Inverse Deductive or Historical Method, applicable (as he explains) to the investigations of general sociology. In using this method the inquirer begins by directly generalising from history empirical laws, which he then seeks to verify by deducing them from the laws of human nature. If thus deducible, the generalisations from history become laws of nature, but until deduced they are merely empirical, and do not amount to science. Now, in this chapter he makes no mention of Political Economy as likely to obtain any assistance from the Historical Method, and thus the impression might be left upon a reader's mind that in Mill's opinion the Historical Method had no place in Political Economy. Still it would be absurd to suppose that Mill was such a pedant as to object to the ascertaining of truth by any method. And, in fact, we find that he does employ the Historical Method (as he conceived of it) in his own economic investigations. His treatment of the merits and drawbacks of Peasant Proprietorship follows the Inverse Deductive Method. He first generalises the economic consequences of Peasant Proprietorship from the evidence furnished by observation; and then shows that these consequences are such as we should expect from human beings placed in the given circumstances. There are many other demonstrations in which this method is naturally adopted by economists, probably without ever thinking of the logic of the case. Gresham's Law, for example, is a direct generalisation from experience, and its verification by deduction from self-interest is so obvious that one hardly thinks of it as a process due to the requirements of methodology. But the obviousness of the deduction does not render it needless, for without it Gresham's Law would be an utterly unintelligible empiricism, and could have no place in science. However, as Mr. Keynes shows, some of the extreme adherents of the Historical School seem to suppose that empirical generalisation is enough for science, and that deduction is superfluous: but this is another way of saying that explanation is superfluous. It seems to me that Mr. Keynes's chapter on "Political Economy and Economic History" might be made more effective by introducing into it a more explicit and formal statement of the Historical Method as Mill conceived of it and as the author plainly accepts it.

I have not attempted to examine Mr. Keynes's book in detail, for a reason which I believe any reader of it will acknowledge to be a good one. The abundance of its details, its happy distinctions, lucid explanations, judicious reconciliations of opposing doctrines, comprehensive knowledge of the controversy, masterly command of the resources of scientific method, fertility of forcible illustration and succinctness of statement—make selection nugatory and a brief analysis impossible. It really seems not too much to hope that this work may be effective in dissipating many errors with regard to economic method, in moderating the extravagance of contending schools, and in thereby expediting the progress of the science.

CARVETH READ.

Die Hypnose und die damit verwandten normalen Zustände. Vorlesungen gehalten an der Universität Kopenhagen im Herbst, 1889. Von ALFRED LEHMANN, Dr. Phil., Docent der Experimentellen Psychologie. Leipzig: O. R. Reisland, 1890. Pp. viii., 194.

This book contains a psychophysical theory of hypnosis, worked out with convincing clearness and thoroughness. The author judiciously abstains from any attempt to explain phenomena peculiar to the great hypnosis to which hysterical patients are subject. The consideration of these complications ought, he thinks, to be postponed until a clear insight has been obtained into the nature of hypnotic phenomena as exhibited by normal persons.

According to Dr. Lehmann, the essential characteristic of hypnosis consists in a peculiarly one-sided concentration of attention. This view he shares with many other writers. The distinctive feature of his treatment of the subject is that he throughout regards attention from a psychophysical point of view, as dependent on the distribution of the blood to the various parts of the brain. "When an organ becomes active it receives an increased supply of blood by reflex action of the vaso-motor mechanism . . . and this change may be localised within very narrow limits." Now the internal carotid and its ramifications do not differ in structure from other arteries; we may, therefore, fairly assume that the special activity of any part of the brain produces an increased flow of blood to that part. This process is the psychophysical counterpart of attention, corresponding to it point for point. Without a certain degree of attention a sensation cannot come into being. Expressed in psychophysical language, this means that "psychical changes" are not appreciable in consciousness unless the part of the sensorium affected by them receives an augmented supply of nutrition. Attention may vary greatly in degree of concentration, because the afflux of blood on which it depends may vary within wide limits in amount and rapidity. The full concentration of

attention on a presentation causes the disappearance of others, because when the flow of blood to any given part of the brain is at a maximum it becomes proportionally diminished in other parts. Involuntary attention is easily explicable as a vaso-motor reflex following immediately on the excitement of this or that part of the sensorium by an external stimulus. The distinctive feature of voluntary attention is that it depends on the interest of the presentation attended to. But interest consists in the association of the interesting presentation with a group or series of other presentations of pleasant or unpleasant character. Expressed in psychophysical terms, this means that the more interesting a presentation is the greater is the corresponding nervous excitement. This will naturally produce a stronger stimulation of the vaso-motor centres. Thus, both voluntary and involuntary attention ultimately depend on reflex action of the vaso-motor mechanism.

Lehmann applies this theory to explain the phenomena of normal sleep, and so paves the way for the explanation of hypnosis. Sleep is consequent upon cessation of mental activity, occasioned by fatigue or by other conditions. This cessation of mental activity involves a discontinuance of the stimulation, which, in waking life, constantly proceeds from the active part of the "sensorium" to the vaso-motor centres. Hence the distribution of blood within the brain becomes more uniform, and in all probability the latent innervation of the whole vaso-motor system of the brain is momentarily weakened. The blood moves more slowly, and the entire brain receives, in consequence, a diminished supply of nutrition. The activity of the centres which control the movements of the heart and of the organs of respiration is lowered; hence the breathing and circulation become slower. This produces a general diminution of metabolic process throughout the organism, including the brain. In this way sleep becomes gradually deeper, until after a short time it reaches its maximum. When all organs have, by duly prolonged repose, recovered their efficiency, a slight stimulus suffices to awaken the sleeper, by setting up a strong vaso-motor reflex, which, by exciting the vaso-motor centres, intensifies the latent innervation of the blood-vessels of the brain generally. In deep sleep such a reflex can be produced only by an intense stimulus, or by one which has a peculiar interest for the sleeper. On this last point Lehmann lays great stress. The psychostatic condition of the mother who is aroused from sleep by the slightest cry from her sick child, although she is undisturbed by much louder sounds, is, according to him, essentially analogous to that of the hypnotised subject who is in *rappor*t only with the hypnotiser. The mother goes to sleep with her attention fixed upon her child. The hypnotised subject sinks into trance with his attention fixed upon the proceedings of the operator. The result is that each remains sensitive to impressions of the kind with which they were respectively preoccupied even after they have ceased to be

sensitive to other impressions. The value of this analogy evidently depends upon the degree of affinity between hypnosis and ordinary sleep. According to Lehmann, these states are very closely allied. The hypnotic trance is, according to him, nothing but a partial sleep in which only a restricted portion of the brain continues to be excitable.

He supports this view by an analysis of the methods by which hypnosis is induced. Bernheim has often transformed ordinary sleep into hypnosis by merely laying his hand on the forehead of the sleeper and saying 'Sleep on quietly, do not wake'. Lehmann's explanation is as follows:—"The contact so far awakens the sleeper that he is able to hear what is said to him. He recognises the voice of the physician, and being accustomed to obey orders coming from that source he continues to sleep. But his attention is already directed to the speaker so as to be in *rapport* with him. In other words, normal sleep has passed into hypnotic sleep." Great stress is laid on Bernheim's method of producing hypnosis by suggesting sleep, as clearly showing the essential affinity of the two conditions. A careful examination of the method of monotonous stimulation yields a similar result. Persistent attention to a monotonous and wholly uninteresting stimulus causes fatigue and general stagnation of mental activity. It, therefore, tends to induce sleep. If the subject is left to himself he gradually sinks into a state hardly distinguishable from ordinary sleep. But he is not left to himself. Throughout the whole process his attention is directed towards the proceedings of the operator. His mind, therefore, remains fixed in an attitude of response to impressions coming from this source, even when it is becoming insensible to all else. The hypnotiser, availing himself of this special *rapport*, interferes to arrest the process of somnolence midway. Suggested ideas and actions keep the subject in a state of partial wakefulness, causing him to dream a series of dreams, having as their common centre and starting-point the persistent presentation of the hypnotiser. Such one-sided fixation of attention has for its psychophysical counterpart a fixed vaso-motor arrangement by which only a certain limited portion of the sensorium is supplied with nutrition adequate to sustain mental activity. This theory is not inconsistent with the existence of cerebral hyperæmia in hypnosis. The nutrition of the brain depends on the rapidity of the flow of blood, so that a decreased rate of flow means more imperfect nutrition. Now the recent researches of Geigel on the mechanical conditions of the distribution of blood within the brain show that the dilation of the capillaries, which produces hyperæmia, involves diminished rapidity of flow. In hypnosis the one-sided fixation of attention consists in a tetanic contraction of certain blood-vessels producing an accelerated movement of the blood in the wakeful part of the brain. This hypothesis seems, in some degree, to explain why, in deep hypnosis, the subject is insensible to even the most violent impressions which do not come from the operator. The

impossibility of awaking the sleeper by ordinary means is one consequence, among others, of this fixed vaso-motor arrangement.

It would seem, according to Lehmann's theory, that hypnosis induced by a visual impression ought to be characterised by a special wakefulness of the sense of sight. But in point of fact the sense of sight goes to sleep while the muscular and auditory senses remain awake. Lehmann meets this difficulty by pointing out that the order in which our senses go to sleep is not determined by the previous direction, but by anatomico-physiological conditions of which nothing is known. In normal sleep, taste and smell are the first to sink into inactivity, then sight and the senses of heat, cold and pressure. What remains to the last obscurely present to consciousness is the position of the limbs and the sounds which strike the ear. There is no reason why this sequence should be altered in hypnosis. Sight and touch fall asleep before hearing and the muscular sense. The monotonous and uninteresting stimulation of the visual sense tends to send it to sleep by producing fatigue rather than to keep it awake. If the subject is left to himself, the other senses fall asleep also. But if he is taken in hand by the operator before this deep state has supervened, he is kept in that condition of partial alertness in which he is open to suggestions *ab extra* conveyed in the first instance through the muscular or auditory sense.

Lehmann next proceeds to explain one by one the leading phenomena of hypnosis. This task is performed in a very thorough and careful manner. First, he considers the state of the sensibility during hypnosis. According to his theory, the reaction-time for the waking senses ought to be shorter and the laminal intensity smaller than they are normally, partly because attention is immovably concentrated on the stimulus, and partly because there are no competing sensations of touch and sight. This inference from his theory is, he thinks, fully borne out by experiments. He refers in this connexion to the work done by Beaunis, but he does not seem to be acquainted with the experiments of Stanley Hall or of W. James. The extraordinary minuteness and accuracy of hypnotic memory is explained as due to the undisturbed and exclusive concentration of attention on the successive links in the train of associated ideas. Forgetfulness in the waking state of what has taken place in the trance is accounted for by two considerations: (1) The associations formed in hypnosis are in waking life overborne by a coherent system composed of innumerable counter associations sustained by the multitude of impressions "which stream in from the external world". (2) The ideas belonging to the trance are associated with a state of organic sensation profoundly different from that which normally forms the basis of personal self-consciousness. Hence, even if these ideas did emerge into the waking consciousness they would appear as a mere play of fancy, not as actual occurrences personally experienced. Lehmann's book was written before Prof. Pierre Janet's *L'Automatisme psychologique* (see MIND,

xv. 120) appeared. Otherwise, I presume, he would have availed himself of Janet's extremely interesting and important researches on the connexion of the state of the memory and the state of the sensibility during hypnosis.

Lehmann's treatment of suggested hallucinations is very interesting. Images differ from percepts in being less distinct and more subject to voluntary control. Now the hypnotised subject has lost free command over his mental imagery: suggested presentations have for him the fixity and independence of percepts. They will, therefore, present themselves to him as actual objects if they are sufficiently distinct.¹ Here, however, we are confronted with a difficulty. Beaunis has discovered by experiment that hypnotic hallucinations are really very indistinct. He suggested to his subjects that they should see the drawing of a dog or some such object on a piece of paper. He then told them to trace the outline with a pencil. The result was, in some cases, a drawing in which it was difficult to recognise any likeness to the object. Beaunis naturally inferred that the suggested images had not really the distinctness of percepts. Lehmann replies that, for those who have not the trained eye of an artist, objects as actually perceived ordinarily fall far short of the distinctness of a recognisable copy of the same objects on paper. It is only by intentional examination that we discriminate distinguishing details so as to be able to reproduce them with a pencil. Lehmann supports this position by adducing an experiment made by himself. It so happened that a quarter of an hour before reading the account of the experiments of Beaunis he had attentively watched the playful movements of a dog for about five minutes. After reading Beaunis he immediately attempted to draw with all possible accuracy his memory-image of the dog. The result was a rude outline of an animal which a zoologist would have been puzzled to classify. In corroboration of Lehmann's view, I may mention an experience of my own. It sometimes happens that I become aware of the fact that I am dreaming while the dream-imagery persists. On some of these occasions I have set myself to examine the imagery. I have always found that examination was impossible. By no effort can I discriminate new details in the total presentation. But the effort conspicuously succeeds in another way. It brings home to my mind the indistinctness of the images. Since dreams are the closest analogue of hypnotic hallucinations, I am inclined to lay some stress on this point.

The suggestion of postures and movements in hypnosis is discussed with great care and clearness. The general principle of explanation is that the invariable psychological antecedent of movements which are not automatic is the exclusive or dominant

¹ I commend the consideration of this point to those who find the characteristic mark of reality in subjection to the will.

concentration of attention on a motor presentation. The possibility of successfully suggesting post-hypnotic memory of hypnotic occurrences is accounted for by an association between what happens in the trance and the suggested idea of being awake. The operator says to the subject: 'When you *wake*, you will remember this'. The word *wake* momentarily calls up the presentation of the waking state, or, to speak more accurately, the subject is for the moment partially awoke. Thus, an association is formed which gives rise to post-hypnotic memory. This explanation does not, of course, cover the peculiar difficulties connected with post-hypnotic remembrance occurring after a long period, at a date which the subject must himself ascertain by a calculation made in the intervening time. Lehmann thinks that in such cases the requisite calculation is made in dreams. Having considered how post-hypnotic remembrance can be produced by suggestion, the author proceeds to deal with the further problem—why these remembrances give rise to hallucinations and actual movements as they would do in hypnosis. His solution is that the recall of the occurrences of the trance occasions a transient reinstatement of the trance itself. He does not make any reference in this or in any other part of his work to the simultaneous duplication of consciousness for which so much evidence has been adduced by Gurney, Janet and others; and he does not seem to be acquainted with Gurney's experiments reported in the *Proceedings of the Society for Psychical Research* for May, 1887, on the mental condition of subjects in the interval between the cessation of hypnosis and the post-hypnotic fulfilment of suggestion, and also at the time when the suggestion is being carried out.

The distinctive merit of Lehmann's work lies in the systematic thoroughness with which he has kept in view his central psychophysical conception. His theory of attention is, of course, not substantially new. In England it has been advocated by Carpenter, and it is, I believe, held by Dr. Ward. Lehmann, however, has been enabled by the aid of Geigel's researches to improve the form of the theory, and to apply it in this improved form to the explanation of hypnosis. In his treatment he has been in most points anticipated in a greater or less degree by previous writers. The affinity between sleep and hypnosis has often been pointed out. Bertrand insists on the analogy of the *rapprochement* between subject and operator to that between the sleeping mother and her child. The part played by modifications of the coenaesthesia in producing discontinuities of memory and of personal consciousness is well known. The originality and value of Lehmann's work lie in his persistent and successful endeavour to connect the special explanation of the several hypnotic phenomena with a general psychophysical theory of hypnosis.

G. F. STOUT.

VI.--NEW BOOKS.

[These Notes (by various hands) do not exclude Critical Notices later on.]

Essays : Scientific, Political, and Speculative. By HERBERT SPENCER. Library Edition. 3 Vols. London : Williams & Norgate, 1891. Pp. viii., 478 ; 466 ; 492 (with Subject-Index by Mr. F. Howard Collins, pp. 493-516).

Mr. Spencer's three volumes of *Essays*, originally published in book-form at intervals from 1857 to 1874, are here republished, with modifications and additions, in uniform style with the volumes of the "Synthetic System of Philosophy". As not a few of his most notable contributions to science and philosophy are to be found among the *Essays*, it is matter of congratulation that he should have used some part of his restored vigour of body in giving to the collection of his occasional writings this definitive and appropriate form. The additions are considerable, consisting of six essays written since 1882, besides "a conversation and a speech" entitled "The Americans," called forth on occasion of a visit in that year to the country which was less slow than his own to do him justice. The modifications are not inconsiderable, both as regards particular essays and as to the ordering of the whole collection. The order is now so fixed that vol. i. is made up of essays in which the idea of evolution, general or special, is dominant ; that vol. ii. is occupied with philosophical questions, with abstract and concrete science and with æsthetics, in the treatment of which evolutionism is kept rather implicit ; and that vol. iii., consisting of ethical, political, and social essays, is of a mainly practical character. The author gives references to a few other essays or notes (from 1875 to 1885) which he has not thought fit to republish. One which he has felt bound to reprint—"Prof. Green's Explanations" (ii. 321-32)—is now prefaced and concluded with some remarks that will hardly command universal sympathy. But when it is added that the *Essays* now include—besides such well-known pieces as "The Classification of the Sciences," "The Physiology of Laughter," &c.—the elaborate "Factors of Organic Evolution," published separately some years ago, nothing more need be said to recommend the collection to philosophical readers.

Browning as a Philosophical and Religious Teacher. By HENRY JONES, M.A., Professor of Philosophy in the University College of North Wales. Glasgow : James Maclehose & Sons, 1891. Pp. xii., 367.

"The purpose of this book," says the author, "is to deal with Browning not simply as a poet, but rather as the exponent of a system of ideas on moral and religious subjects, which may fairly be called a philosophy." It is very well, and even eloquently, written. Nothing could be more thorough than Prof. Jones's command of the poet's works in all their width of range, or more just than the discrimination that tempers the enthusiasm of his admiration. His book—or at least the greater part of it—may be read, for its mere literary interest, with no ordinary profit. The philosophical motive has, however, been uppermost with the author. Having worked out (under general Hegelian influence), into a clearness of his own, a body of ideas bearing upon human knowledge and

conduct, he makes a criticism on Browning the vehicle for bringing these forward. At some stages of the poet's development, chiefly the earlier, he finds in Browning a close approximation to what he regards as the true philosophic understanding of man and the world, but followed in the later stages, for the most part, by a falling-back from the higher level once attained. The causes of such backsliding (supposing it to be a fact) do not seem to be sufficiently indicated, whether by reference to external influences of the time or to the nature and unsystematic training of the poet's mind. And, generally, as is apt to be the way of those with whom Prof. Jones thinks, there is a disposition throughout his volume to ignore or make light of all spiritual influence that does not come from the one approved German source. Notwithstanding, there is much in his more philosophical chapters which is as strenuously thought out as it is felicitously and vividly expressed. Mention, especially, should not be omitted of his well-pointed observations on the conditions of poetic art in comparison with philosophic thinking.

Proceedings of the Aristotelian Society for the Systematic Study of Philosophy. Vol. I., No. 4 (pt. 1). London: Williams & Norgate, 1891. Pp. 1-39.

This issue contains the Presidential Address for 1890 on "The Laws of Association," a note on "The Categories of Scientific Method," by Mr. R. B. Haldane, and contributions by Mr. A. Boutwood, Mr. H. W. Blunt, and Mr. G. F. Stout to a "Symposium" on the question, "Does our Knowledge or Perception of the Ego admit of being Analysed?" The chief paper is the Presidential Address (pp. 1-21). Here Mr. Hodgson develops, with special reference to Association, his general psychological doctrine that the real conditions of all mental occurrence are to be sought in the organism. Regarded simply as mental occurrence, Association of Ideas is to be defined as "spontaneous redintegration." It occupies an intermediate position between the two other main and comprehensive functions of the Subject, considered simply as conscious agent, *viz.*, "sense-presentation" and "volitional reactive redintegration." Association is first found to depend, in appearance, upon "similarity" and "contiguity" with "emotional interest". These factors, it is decided on examination, do not suffice for a scientific account of the conscious processes. For such an account we must be able to assert their dependence on physiological processes; and, in fact, we are able to assign as their real conditions definable processes in the nervous system. "Apparent association by similarity is evidence of similarity in brain processes in one and the same part of the brain; and apparent association by contiguity is evidence of an established continuity or permeability of channel between different parts of it. Similarity and continuity in brain processes are the real conditions, or *verae causae*, of similarity and contiguity in the states and processes of consciousness in trains of redintegration." Also, it may be "fairly inferred that there are brain processes specially subserving emotions, closely bound up with those which subserve imagery, and entering with them into many, if not all, the parts of the whole redintegrative organism, and into the connexions between them". Laws governing the actual course of particular redintegrations may be called Dynamical; those that apply to all spontaneous redintegrations alike being called Statical. We cannot at present formulate any Dynamical Laws. "The hope of our ever doing so must lie in the continued investigations of physiological and experimental psychology." Statical Laws which can be formulated are "that the redintegration both of imagery and of emotion depends upon (1) depth or strength of the original impressions which are afterwards

liable to recall ; (2) number and permeability of the connexions between different cerebral organs and processes ; and (3) increase of what belongs to both the first and second of those heads by frequency of repetition and consequent habituation ”.

The Art of Literature. A Series of Essays, by ARTHUR SCHOPENHAUER, selected and translated, with a Preface, by T. BAILEY SAUNDERS, M.A. London : Swan Sonnenschein & Co., 1891. Pp. xv., 149.

This is another volume of essays selected and translated by Mr. Saunders from the *Parerga und Paralipomena* (for the last see MIND No. 61, p. 141). Like all the former volumes, it is an excellent piece of translation. The contents have been arranged with special skill. The subject of literature as an art, Mr. Saunders points out, was one upon which Schopenhauer was particularly qualified to speak. In the present little volume, as he well says, “we have observations upon style by one who was a stylist in the best sense of the word, not affected, nor yet a phrase-monger ; on thinking for oneself by a philosopher who never did anything else ; on criticism by a writer who suffered much from the inability of others to understand him ; on reputation by a candidate who, during the greater part of his life, deserved without obtaining it ; and on genius by one who was incontestably of the privileged order himself ”.

Riddles of the Sphinx. A Study in the Philosophy of Evolution. By A. TROGLDYTE. London : Swan Sonnenschein & Co., 1891. Pp. xxvii., 468.

This is an attempt to arrive at a metaphysic compatible with modern science. The name assumed by the author has the Platonic reference, and the book is dedicated to “a fellow-prisoner in the cave”. His metaphysical doctrine is not put forward as novel—novelty, he thinks, would be regarded as an objection to it—but rather as agreeing in spirit with older philosophy, and yet as “substantially a *philosophy of Evolution*”. “The author must refuse to apologise for what may seem the romantic character of some of his conclusions.” The relation of the book to Christianity is one of complete independence, though not, he hopes, necessarily of conflict. Critical Notice will follow.

Principles of Natural and Supernatural Morals. By the Rev. HENRY HUGHES, M.A., formerly Junior Student of Christ Church, Oxford ; and sometime one of H.M. Inspectors of Schools. Vol. I.—Natural Morals. Vol. II.—Supernatural Morals. London : Kegan Paul, Trench, Trübner & Co., 1890, 1891. Pp. xii., 369 ; xi., 321.

This book concerns theologians much more than philosophers, but, as a large part of it deals with philosophical topics, its purpose and principal contents may be noted. “The main purpose of the book is to establish the thesis that there are, not one, but three sciences of morals.” The first of these is “a science of the motives and ends of conduct that belong to pagan or non-religious man, to man regarded simply as a voluntary agent forming part of the world of nature”. This is the subject of volume i. An attempt is first made to exhibit a system of natural morals “generally applicable to the case of dwellers in pagan lands,” and, as the author thinks, in important particulars not unlike the morals of Aristotle. This fills chapters i.-xii. The remaining chapters of the volume (chs. xiii.-xviii., pp. 263-369) are devoted to criticism of the ethical doctrines of Butler, Kant, J. S. Mill, Mr. Sidgwick, Mr. Spencer, and Dr. Martineau. After the science of natural morals, there is, “secondly,

a science which, while it includes the former, takes account also of other phenomena arising from man being brought into conscious relations with God. Of the whole body of phenomena with which this science has to do, Jewish morality may be taken as the type. And there appears to be, thirdly, a science which embraces within its scope all the phenomena of the moral life of the present day, those which are at the same time Jewish together with others which are distinctively Christian." Volume ii. accordingly consists of two Parts, the first of which deals, in ten chapters, with "Jewish Morals," and the second, in seven chapters, with "Christian Morals". The principle of Jewish morals is obedience to God as making known certain commands by revelation. Christian morality has its basis in a "new birth," or "new creation of humanity". "A member of the Christian Church is regarded as being, by the constitution of his nature, the subject of certain motives and ends of conduct which are altogether foreign to persons who have not been admitted into it." "Christian morals is the science of the conduct of a new race of men, of a race endowed with the germs of a moral constitution higher than any that can ever be developed among the once-born posterity of Adam. As natural morals and Jewish morals presuppose in man higher moral capabilities than any that belong, or can ever belong, to the animal creation, so Christian morals presuppose in the Christian higher moral capabilities than any that belong, or can ever belong, to the mere natural once-born man." The great contrast between the natural moral life and "the life of the new nature" is this. "In natural morals there appears to be an assertion of one's own will, as a will which moves freely among other freely-moving wills, which is orderly and legitimate"; while, on the contrary, "in Christian morals there is no assertion of individual will in relation to other wills which is not in itself disorderly and illegitimate" (ii. 307).

Body, Parentage, and Character in History: Notes on the Tudor Period. By FURNEAUX JORDAN, F.R.C.S. London: Kegan Paul, Trench, Trübner & Co., 1890. Pp. vi., 82.

The author's work, *Character as seen in Body and Parentage*, to which this is a sequel, was noticed in MIND, xii. 298 and (2nd ed.) xv. 582. The formula at which he finally arrived was that all characters may be divided into the classes—"active-unimpassioned," "reflective-impassioned," and intermediate or mixed. The greater part of the present little volume is occupied with an analysis of the character of Henry VIII.; the aim being to show that he was really of the "active-unimpassioned" class. Some concluding pages on "Queen Elizabeth and Queen Mary" are intended to show that the characters of Henry and of Elizabeth were in all essentials the same (the classification applying equally to men and women), while the Queen of Scots was of exactly the opposite character. There is much lively disquisition on the personages and events of the period generally.

The Philosophy of Right with special reference to the Principles and Development of Law. By DIODATO LIOY, Professor in the University of Naples. Translated from the Italian by W. HASTIE, M.A., B.D., &c. In 2 vols. London: Kegan Paul, Trench, Trübner & Co., 1891. Pp. xli., 353; viii., 392.

Having already brought some of the work of German jurists within the reach of English readers (see MIND, xiii. 130) Mr. Hastie has here translated the *Philosophy of Right* of the eminent Italian jurist Lioy. The fact that it has been translated into German, French, and Spanish,

besides reaching the third Italian edition, is, as he remarks, a guarantee of its interest and value. The present translation has been done with the sanction and co-operation of the author, who has made important additions and modifications on the last edition of the original work. The Table of Contents has been enlarged, and the Summaries and Bibliography, left out by the German and French translators, have been rendered. In introducing the work, Mr. Hastie sets forth the historical circumstances that have made Italy in a special way the home of juristic studies. "It is in the highest department of all," he contends, "the one which crowns and unifies and completes all the others, that we meet with the most characteristic and original products of the juridical genius of the modern Italians. The Philosophy of Law has been nowhere cultivated with more earnestness, assiduity, and success, during the present century, than in Italy." Prof. Liroy does not depart from the tradition of dealing first with fundamental problems. His "Prolegomena," extending over pp. 1-182 of vol. i., contain sketches of the history, not only of the "Philosophy of Right," but also, before this, of "Metaphysical Speculation" and "Ethics". In general philosophy he attaches himself more closely to Gioberti, and in juristic philosophy to Vico. "Right" is treated, from the philosophical point of view, first as having certain ends or "objects," which are special forms of "the good," and in the course of historical development have become explicit in Religion, Science, Art, Industry, Commerce, Morality, Justice. These "Objects of Right" are dealt with in the remainder of the first volume. The second volume deals with the "Subjects of Right," in which the objective relationships are realised. Beginning with the Individual, the author finds that history nowhere presents individuals in isolation, but only "families, tribes, races, peoples, or states". The individual therefore is to be considered, "not as a whole in himself, but in relation to the whole". The Family is viewed as the earliest form of society; whence the author ascends through the Commune, the Province and the State, up to Humanity. Under the head of "Society of the States" there is a considerable treatment of International Law. The work is especially full on the side of comparative study of codes and institutions.

The Intra-Cranial Circulation and its relation to the Physiology of the Brain.
By JAMES CAPPIE, M.D. Edinburgh: J. Thin, 1890. Pp. 188.

Dr. Cappie here sets forth a general theory of the physiological bearing of the brain's anatomical surroundings, not without special reference to the view of the causation of sleep expounded in an earlier work (see *MIND*, viii. 307). Great prominence, he holds, should be given to the circulation as one of the essential factors of the brain's activity. The peculiarities of the intra-cranial circulation, as contrasted with that of other regions of the body, are, accordingly, first discussed. The question is then put, How is the circulation in the brain physiologically determined? The special points the author seeks to establish are these. The contents of the skull are for ordinary intervals of time unchangeable in total bulk; changes in circulation are therefore changes in internal distribution of fluids. Normally, there is hardly any change in the local distribution of the cerebro-spinal fluid, as compared with the total quantity of blood in the brain; changes in distribution therefore can only be between the arteries and capillaries on one side and the veins on the other. There is a constant ebb and flow between the veins of the pia mater and the brain-tissue in which the capillaries are distributed. The contents of the skull are not immediately affected by

atmospheric pressure, all foramina being so closed during life as to prevent this. If atmospheric pressure has any influence, it must be exerted through the vessels in their course outside of the skull. Atmospheric pressure, thus exerted, is one of the principal factors in regulating the intra-cranial circulation. Being a constant cause, it cannot by itself produce changes in distribution. These have their primary source in molecular activity within the brain; such activity in the tissues being, according to the view accepted by the author, a factor as indispensable as the heart's action in determining the circulation everywhere. Let us suppose molecular activity in the brain to become slower. Among the effects will be that the pressure of the atmosphere retards to a greater extent the return of blood through the veins. Less blood will now circulate in the arterial and capillary vessels of the brain, and to an exactly corresponding extent more must be held by the veins. From the situation of the veins, as compared with the capillaries, there follows a compression of the brain directed from the external to the internal parts. Such compression, raised to a certain amount, is the physical concomitant of sleep or suspended consciousness. "At each and every stage—whether the consciousness be latent or alert—the molecular motions, the blood currents, and the intra-cranial pressure or tension are all correlated to one another and to the state of the mental functions." The argument, of which this is a very general outline, is well supported by facts and reasoning, and is skilfully defended in its controverted parts against opposing views. A chapter on "Some Points in Mental Physiology" (pp. 109-36) may be referred to as more specially psychological.

Pre-Organic Evolution and the Biblical Idea of God: An Exposition and a Criticism. By CHARLES CHAPMAN, M.A., LL.D., Principal of Western College, Plymouth. Edinburgh: T. & T. Clark, 1891. Pp. xi., 304.

A defence of Theism as compatible with the Spencerian doctrine of Evolution, and even as its logical consequence. The theistic idea of God as Personality or Rational Will, it is hinted, leads further to the idea of a Revelation. Hence the title of the book, though the argument is exclusively philosophical. The author accepts evolution in its cosmical sense, as having a long series of stages prior to the development of organic forms, and makes little objection on the scientific side to Mr. Spencer's account of this "pre-organic evolution". His principal contention is that, if the "homogeneity" with which evolution starts be taken strictly, no change at all is possible; if, on the other hand, some degree of initial differentiation be presupposed, this amounts to the admission of an intelligent adjustment in the beginning, since the nebula, or whatever may be more primitive, contains in germ all future adjustments. The theory of Cycles may seem to offer an escape from the difficulty. If, however, we suppose the homogeneity that results from Dissolution ever to be absolute, no new Evolution is possible; and if it is never absolute, there is no evolution at all, in the sense of a "process by which all differentiation comes out of the undifferentiated". Considering directly the relation of Mr. Spencer's "Eternal Reality" to its manifestations, the author argues that "Intelligence in the manifestations means Intelligence in the Cause, i.e., the Power implied in Cause is a Rational Will". Although the argument is for the most part based on Mr. Spencer's theory of Inorganic Evolution taken separately, the author is careful to point out that this does not constitute the whole doctrine. In some remarks, extending over pp. 50-3, he does justice to the distinction between Mr. Spencer's system with its view of con-

sciousness "as a direct manifestation of the One Reality, radically distinguished as phenomenon from all else in the world," and the Materialism which regards it as "direct outcome of the phenomena of force in form of molecular motion in the brain". Having arrived at this understanding, however, he dismisses it in dealing with phenomenal evolution, and considers almost exclusively the objective side of the process. For this reason his theism is not brought quite so closely as it might have been into contact with the philosophic as distinguished from the scientific expression of Mr. Spencer's doctrine.

Hegel's Logic. A Book on the Genesis of the Categories of the Mind. A Critical Exposition. By WILLIAM T. HARRIS, LL.D., U.S. Commissioner on Education. ("Griggs's Philosophical Classics," No. 8.) Chicago: S. C. Griggs & Co., 1890. Pp. xxx., 403.

An exposition of Hegel's *Logic*, with an autobiographical preface describing the author's long and strenuous efforts to arrive at an understanding of Hegel, or, as he puts it in one place, "to think something into" the categories of the *Logic*. The exposition is "critical" not merely in name; dissent from Hegel being expressed at more than one point, and reasons given for it.

Outlines of a Critical Theory of Ethics. By JOHN DEWEY, Professor of Philosophy in the University of Michigan. Ann Arbor, Michigan, U.S.A.: Register Publishing Company, 1891. Pp. viii., 253.

This book has "taken shape in connexion with class-room work," and is intended primarily as a text-book. The method is, by the comparison of "opposite one-sided views," to discover a more adequate ethical theory. Judicious references are given throughout to the literature of the subject, and passages are occasionally quoted *in extenso*. From its clearness of exposition, candour in statement and appreciation of opposing views, and vigour and independence of thought, the work ought to prove highly serviceable to students of Ethics, whether more or less advanced. Its only fault is its brevity, but the author's power of condensation is such that only beginners will be likely to complain of this. The point of view is, as readers of Prof. Dewey's *Psychology* will expect, in the main that of the English Hegelians. Acknowledgment of indebtedness is made, however, not only to such writers as Green, Mr. Bradley and Prof. Caird, but also to Mr. Spencer, Mr. Leslie Stephen, and Mr. Alexander. References to the latter representatives of evolutionary ethics are no less frequent and appreciative than to the transcendentalists above-mentioned. To Hegel himself Prof. Dewey acknowledges his great obligation in his treatment of the "ethical world". At the same time, the book is offered as "an independent contribution to ethical science"; and in several important points of theory, as always in the mode of statement, the author must be credited with originality. This is especially true of his account of Moral Progress, of Desire as "ideal activity in contrast with actual possession," of moral rules as "tools of analysis," of an actual "situation," of the relations of Duty and Desire, of moral "badness," and of the ethical value of Science and Art. The present discussion of these points will repay careful study and provoke further reflexion; a more detailed treatment of the whole subject would be welcome. The work is divided into three parts: (i.) Fundamental Ethical Notions, *viz.*, The Good, the Idea of Obligation, and the Idea of Freedom; (ii.) The Ethical World; (iii.) The Moral Life of the Individual, including the formation and growth of Ideals, the Moral Struggle or the Realising of Ideals, and Realised Morality or the Virtues.

Mechanism and Personality: An Outline of Philosophy in the light of the latest Scientific Research. By FRANCIS A. SHOUF, D.D., Professor of Analytical Physics, University of the South. Boston, U.S.A.: Ginn & Co., 1891. Pp. xiv., 343.

An attempt "to meet the growing inquiry as to what has become of metaphysic in the glare of the scientific thought of the day". The author is thoroughly abreast of the latest advances in physical science; his "metaphysic is, in the main, that of Lotze, or, perhaps better, the Lotzian phase of Kant". The work is popular in the best sense, admirably clear, without sacrificing thoroughness to clearness. The scientific part is, as might be expected, the most successful; but the writer has thought carefully and independently upon metaphysical questions. The science and the metaphysic of the book are not brought into as close a relation as might be; it contains, for instance, a great deal of good psychology the speculative bearing of which does not appear. Nor is the conception of Personality, whose central importance is throughout emphasised, determined with sufficient definiteness, whether as respects its human or divine side. What is reached is rather a psychical than a strictly *personal* view of the universe. Special attention may be called to chs. xxiv. and xxv., dealing respectively with the "construction of Matter" (from the point of view of Physics), and with the question of the "exactness" of mathematical truth.

Les Idéologues. Essai sur l'Histoire des Idées et des Théories scientifiques, philosophiques, religieuses, &c., en France depuis, 1789. Par FR. PICAVET, Docteur ès lettres, &c. Paris: F. Alcan, 1891. Pp. xii., 628.

This is a piece of work which it ought not to have been left to a scholar at this time of day first to take seriously in hand. There is compensation, however, in the fact that it has been reserved for an inquirer at once so able, so sympathetic, and so untiring as M. Picavet. "The Ideologists," from their influence upon Thomas Brown, James Mill, &c., as well as in regard to the English inspiration of much of their own thought, concern the English student of the history of philosophy hardly less than the French. M. Picavet's elaborate and remarkable work is in every way to be welcomed. Critical Notice will follow.

L'Année Philosophique. Publiée sous la direction de F. PILLON, Ancien rédacteur de la *Critique Philosophique*. Première Année.—1890. Paris: F. Alcan, 1891. Pp. 356.

This is the first volume of an annual review intended to take the place of the *Critique Philosophique*, as announced on its discontinuance a little over a year ago (see MIND, xv. 151). The contents are:—(1) An article by M. Renouvier "On the agreement of the phenomenist method with the doctrines of creation and of the reality of nature" (pp. 1-41); (2) an article by M. Pillon on "The first Cartesian proof of the existence of God, and the criticism of the infinite" (pp. 43-190); (3) a study of Guyau's æsthetic doctrine and general estimate of him as a philosopher, by M. Dauriac (pp. 191-225); and (4) an extensive "French philosophical bibliography for the year 1890," by M. Pillon (pp. 227-352), the books noticed being classified under the heads of "Metaphysics and Psychology," "Ethics and Religious Philosophy," "Philosophy of History and Sociology," "History of Philosophy". All the divisions are very full of matter. The two articles are both concerned with the phenomenist method in its relation to the main speculative positions of the "criticist"

metaphysic. M. Renouvier sets forth, not the ethical motives that justify belief in Kant's "postulates of the practical reason," but the intellectual form that must be given to the postulates according to that principle of phenomenism which replaces the notion of "substance" by the notion of "law". First, he contends that the "substantialist" doctrine really excludes creation and all permanent distinctions of individuality, and that this appears historically. To avoid the logical necessity of pantheism, the conception of "substance" as metaphysical reality must be wholly got rid of. It has, in fact, been dispelled by the criticism of English psychological philosophers; and in the rational theory of science the conception of law has now wholly taken its place. This substitution in no way affects the reality of things for science; while, in metaphysics, it leaves a place for creation, for freedom, and for the permanence of individuality, at least as intellectual possibilities. According to the phenomenist doctrine, there is only one permissible use of the notion of "substance," *viz.*, as an aid to the imagination. When it is employed in this way, not only "atoms" but "monads" may be admitted. In connexion with this last point there is an interesting discussion of the monadism and pre-established harmony of Leibniz; both of which doctrines, M. Renouvier contends, may be interpreted consistently with phenomenism. If the phenomenism of Leibniz's real doctrine was not perceived in his own time or for long after, this was owing to his manner of "accommodating" his expressions to the doctrine of anyone with whom he might be in correspondence, and in particular to the speech of scholastic theologians. Upon Leibniz M. Pillon also has much to say in the article with which he continues the exposition of the intellectual opposition between phenomenism and substantialism. His starting-point is Descartes' argument from the idea of a perfect being to the real existence of a perfect being as the efficient cause of the idea. The quantitative idea of infinity and the qualitative idea of perfection, M. Pillon shows, are, in the argument, combined; and its intellectual basis is the maxim that the greater—the notion of an infinite being—cannot be produced by the less—by a merely finite substance, such as the individual human soul. The criticisms passed upon the argument in Descartes' own time and by Leibniz are reviewed, with the result that a near approach was made by more than one critic to demonstrating the logical impossibility of the "actual infinite number," and, therefore, of all actual infinite magnitude. Descartes himself believed in an actual or realised infinity of space or of the world. Though he called it an "indefinite" to distinguish it from the infinity of God, it was, in fact, from geometrical infinity that he formed the idea of a metaphysical "infinite". In general, spatial "intuitions" tend to associate themselves with all concepts, because their peculiar appearance of intelligibility seems to make the concepts intelligible. This happens, for instance, with the concept of time. By an effort of analytical thought, however, the non-spatial concept may always be set free from the associated intuition—the idea of qualitative perfection, for example, from the idea of the mathematical infinite. For modern phenomenist criticism, the idea of the mathematical infinite, except in the sense of a mere indefinite possibility of accumulating numbers and magnitudes, is self-contradictory. This infinite in mere "potency" is at once incompatible with the real infinite, which it expels from mathematics, and with the perfect, by which it is in turn excluded from qualitative reference, since perfection in any quality supposes the actual attainment of an end. The idea of the perfect involves no contradiction; but this mere absence of contradiction does not enable us to prove by the Cartesian method that the perfect

exists. The Cartesian argument loses its appearance of force as soon as the mathematical element in it has been separated from the rest; and even its apparent force is derived from a conception of cause that modern philosophy has banished. Causation being viewed simply as succession of phenomena according to law, there is no possibility of inferring the nature of an efficient cause from the nature of the effect.

Psychologie de l'Idiot et de l'Imbécile. Par Le Dr. PAUL SOLLIER, Ancien interne des hôpitaux, Conservateur du Musée de Bicêtre. Avec 12 planches hors texte. Paris: F. Alcan, 1891. Pp. iii, 276.

This is a very readable and instructive account of the general psychological characteristics of idiots and imbeciles; the two classes being defined respectively as the mentally defective and the mentally aberrant from birth or from an early age. All alike are regarded as, properly speaking, abnormal. Idiocy is not merely arrested development, but is a chronic cerebral disease characterised by troubles of the mental functions, and deriving its special character only from the early period at which it manifests itself (p. 10). The non-development of faculties that constitutes idiocy on its psychological side must be traced, in the author's view, to defect or absence of attention. By attention is meant primarily "spontaneous attention"; this being the necessary condition of the voluntary form. Attention in general is an affective state setting in action the motor power (p. 67). M. Sollier does not omit an account of defects of actual sensation in idiots; absence of attention, he sees, may sometimes be traced to these defects. He contends, however, that frequently the sense is present and the power of attention absent; an exceptional impression may at length call into activity a sense that had hitherto given no signs of its presence. When the senses are present, and fairly normal, it is absence of the power of attention that makes impossible almost all development of higher intellectual powers. Two preliminary chapters, accordingly, are followed by two on Sense and Attention. Instincts (v.) and Sentiments (vi.) are next considered; then Language (vii.) and "Intelligence, properly so-called"—especially the power of abstracting and generalising (viii.); lastly "Will, Personality, and Responsibility" (ix.). The more detailed classification of types accepted by M. Sollier is into the three following:—(1) absolute idiocy, (2) simple idiocy, (3) imbecility. In accordance with his own psychological principle their characteristics are defined as:—(1) complete absence and impossibility of attention, (2) feebleness and difficulty of attention, (3) instability of attention. The most prominent distinction in the book is the contrast between "idiocy" and "imbecility". This the author regards as marking not merely two degrees of the same affection, but two wholly different types. The culminating opposition of the two types is a broad contrast of moral character. In general, the idiot is "extra-social," the imbecile "anti-social" (and to be guarded against). The first (if not of the lowest type) has a rudimentary moral sense, and can be trained to a kind of automatic activity; the second has a perverted moral sense, and is hardly at all susceptible of training. This opposition is very well connected by the author with the varied contrasts in the elements of the two characters. His many detailed observations may be commended to the attention of readers.

De la Justice Pénale. Etude Philosophique sur le Droit de punir. Par ISIDORE MAUS, Avocat à la cour d'appel de Bruxelles, Docteur en Droit et en Philosophie, Membre de la Société Philosophique de Louvain. Paris: F. Alcan, 1891. Pp. 228.

The motive of this book is to defend philosophically the conception of penal justice attacked by writers of the Italian Criminological School; and at the same time to show that the real results of their investigations can be incorporated in the old juridical doctrine. This doctrine, as the author shows, has its root in the Scholastic philosophy. The "social power" once sought from the doctors of the Church "the directing principles of its government". Hence, to know "the sap on which penal law still lives to-day," we must go to the philosophy in which those principles were formulated. The chief representative of that philosophy, and its culminating point, is Thomas Aquinas. And, although the theory of punishment is treated by him rather from the "moral" or individual than from the "social" point of view, still, by analogical application of his principles, a theory of punishment in relation to the present needs of society may be constructed. A construction of this kind is the substance of the book. Penal justice, in the author's view, must be held to consist essentially in "reparation or satisfaction" for a violation of order proceeding from a person in full possession of "free-will". Consideration of "degrees of responsibility," according to the degree in which free-will is "attenuated," is part of the duty of those who have to administer the law. (At the same time, law makes no claim on internal dispositions, but is satisfied with the external action.) For various reasons, a penalty that comes short of strict "objective" justice may be imposed, but not one that is in excess of it. The execution of justice has for one of its effects to prevent the crime that would be committed if there were no punishment; and the penal law ought to be adapted to this end as well as to its direct end of realising justice; but when, through irresponsibility of the agent, the penal law becomes inapplicable, other social means of prevention (not discussed by the author more particularly) are to be resorted to. Modern civilisation has caused an increase in the number of "irresponsible criminals"—that is, persons who commit crimes and yet cannot justly be punished. There are states of the nervous system, due to the exciting action of modern life, that result in perversities of conduct not to be attributed to free-will. By recognising that such perversities are not properly punishable, and can only be the subject of non-penal legislation, the older jurisprudence may incorporate all the facts brought to light by the Criminological School. Between absolute irresponsibility and full responsibility many intermediate degrees not formerly thought of are to be recognised; and penal justice must allow for them. The author's argument will, as he himself sees, be taken as a verification of all that the writers of the new school—especially Garofalo (see *MIND*, xiii. 450)—have said as to the tendency of "the old juristic maxims" when modified by ideas as to "irresistible impulse" and the like. His position is interesting as revealing an intellectual cause of that weakening of penal sanctions—more particularly on the Continent—which the Italian writers regard as a danger. Of course the theory of justice worked out by M. Maus need not be rejected as valueless in all its parts. We should rather be prepared to find that the systematised scholastic doctrine contains elements not sufficiently recognised by writers who are less occupied with expounding a complete theory than with enforcing new ideas of their own. An example in point is the word "responsibility," which the "new school" need not dismiss from its vocabulary, as it is inclined to do. It could give the term a very good meaning according to its own ideas; and, as was pointed out in a notice of M. Joly's study on Crime (*MIND*, xiv. 456), even now it effectively retains the thing.

Essai sur le Fondement métaphysique de la Morale. Par F. RAUH, Docteur ès lettres. Paris : F. Alcan, 1890. Pp. 259.

The present essay would perhaps be better described as "on the ethical foundation of metaphysics" than by its actual title; its aim being to show that the true ground of metaphysical certainty is the "moral act". This is what Kant partially established, and only failed to establish completely because he was still haunted by the "phantom of geometrical certainty" from the older metaphysics. Continuing to regard this as the ideal type of intellectual truth, he did not find it realised in his own doctrine of the Practical Reason; over his conclusions there was the constant menace of another possible solution. Geometrical certainty, however, is not really the type of philosophical certainty. Ultimately all speculative truth finds its guarantee in "the moral act". The certainty given by this is beyond the scope of any comparison with other and lower kinds of truth. It is the culmination of all metaphysical systems. To this position the author finds himself led in a gradual ascent from "Naturalistic Ethics" (Darwin, Spencer) and "Systems of conciliation and transition" (Guyan, Fouillée, Wundt), through "Intellectualism or Geometrisation" (Spinoza) and "Finalism" (Leibniz), to "Moralism" (Kant); this last system being a preparation for the definitive "System of Liberty". His own doctrine, he tells us, is inspired especially by the works of MM. Boutroux, Lachelier, and Ravaisson. The doctrine is called a "system of liberty" because it transcends the "geometrical" ideal by taking its start from "contingency," which is found to be an ultimate element eluding all intellectual apprehension. The content of the system is furnished by the Kantian postulates of God and Immortality—interpreted as largely as possible.

AUGUSTIN CHABOSEAU. *Essai sur la Philosophie Bouddhique.* Paris: Georges Carré, 1891. Pp. 251.

The aim of the present Essay is to convey an idea of the spirit of Buddhist philosophy; only so much history and reference to sources being given as is necessary for that end. First, however, there is an account of the legend of Sakya-Muni, of Buddhism as a religion, and of Buddhist literature. Buddhist philosophy is then compared with the other Indian philosophies—such as the Sāṅkhya and the Vedānta—that may be supposed to have sprung up as part of the same movement of opposition to Brahmanism. In its distinction from these, it owed its fortune to its popular character; but, essentially, it is a philosophy rather than a religion. The general historical and critical outline is disposed of in four chapters (pp. 21-108). Chapters v.-xx. then expound the system. The last two chapters (pp. 239-251) discuss "Buddhism in Europe" and "The Future of Buddhism". The exposition has sometimes the appearance of a sympathetic recast of the doctrine in conformity with modern cosmological and evolutionary theories, but the author is not without a defence of his mode of interpretation. In his view the morality of Buddhism is the purest and noblest, and its philosophy the most profound and complete, ever attained. Buddhist philosophy, reduced to its elements, contains in germ a reconciliation of all the phases of thought and belief that man has hitherto traversed.

Histoire de la Psychologie des Grecs. Par A.-ED. CHAIGNET, Recteur de l'Académie de Poitiers, Correspondant de l'Institut. Tome II.—*La Psychologie des Stoïciens, des Epicuriens et des Sceptiques.* Tome III.—*La Psychologie de la Nouvelle Académie et des Écoles éclectiques.* Paris: Hachette et Cie, 1889, 1890. Pp. 528; 486.

The first volume of M. Chaignet's *History of Greek Psychology* was noticed in MIND, xiii. 181. The present two volumes deal with the post-Aristotelian systems, and bring the history down to the beginning of the Neo-Platonist movement; the system of Neo-Platonism being left for a fourth and last volume. A feature of M. Chaignet's work is, as before, the very full treatment of the Scholarchs, about whom all attainable information seems to have been collected. The exposition includes much more than an account of the purely psychological positions of the various schools and teachers. The work is, in fact, a history of psychology in relation to general philosophy rather than as a special science. In the opening pages on Stoicism, the characteristics of the movement of Greek philosophy after the death of Aristotle are thus summarised:—"Taste for erudition; leaning to oratorical forms; establishment of schools as concentrated organisms, whose rivalries and struggles do not prevent reciprocal influence; tendency of philosophy to constitute itself a social force; and, above all, the pre-eminence, greater and greater in the totality of science, of psychology considered as the knowledge of man himself". Each school sought a psychological basis for its metaphysic, and at the same time justified its psychological positions by deduction from metaphysical principles. This is true in particular of Stoicism and Epicureanism. The naturalism of the Stoic and Epicurean theories of the universe alike, and of the resulting psychological views, is well brought out by M. Chaignet; but, against Zeller and recent expositors, he contends that the empirical character of the Stoic theory of knowledge has been exaggerated. The substance of his argument is that the Stoics admitted "innate ideas," at least in the form of "germs" and "potencies"—the only form in which their existence has been seriously maintained; hence their theory of knowledge must be regarded as rationalistic. The author, however, does not contend for a similar view of the Epicurean theory of knowledge, although he is able to show that the Epicureans also recognised "anticipations" of experience, "primitive notions," and so forth. In the detail of the two doctrines the contrast that has impressed itself on him is that of logical method. The elaboration of formal logic by the Stoics is compared with the neglect of it by the Epicureans; while, on the other side, the presence of distinct suggestions towards an inductive logic in fragments of Epicurean writings is noted as a point of superiority over the "scholasticism" of the Stoics. Attention may be drawn to a comparison of the Stoical theory of generation with Weismann's doctrine of the "continuity of the germ-plasma" (ii. 44-5). Dr. L. Stein's view of the *συγκράθεσις* (see MIND, xiii. 303) is discussed at length (ii. 117-21), with the result that rather too much has been made of the voluntary character of the act of assent. The central doctrine of Epicurus is found to be free-will. The place of this doctrine in the Epicurean system illustrates the general relations of psychology and metaphysics; for, while it is of psychological origin, it has its metaphysical ground and justification in the theory of the *clinamen*. That theory the author seeks to vindicate against objections such as were made by the ancient opponents of Epicureanism. He does not fail to note points in the detail of the Epicurean psychology—such as the theory of the origin of language (ii. 351-2) and the view of progress (ii. 427-8, n. 4)—which have special interest in relation to modern theories. The Sceptical doctrine, which is next considered, is regarded as being, on its better side, the antecedent of the modern "criticism of reason". "For the Sceptics, the only problem of philosophy is a psychological problem, and the only problem of psychology they try to solve is the problem of knowledge." Most of their psychology was not

very original; but they introduced the distinction between knowledge of phenomena as such—which they generally recognised—and assent to them as true representations of things. It is observed (ii. 480-1) that the Sceptics showed the influence of their intellectual surroundings in their identification of happiness with a state of untroubled calm (*ἀραπαΐα*), when they maintained that such a state was the result of their own intellectual principle of non-assent to representations. The modern "law of relativity" was stated by them in more than one of its forms, but they had no positive theory of science. Inductive and deductive reasoning were for them equally illusory. Recognising the "commemorative sign" as necessary for the purposes of daily life, they refused to allow of anything that can be called a "demonstrative sign". Even among the pure Sceptics or Pyrrhonists there was, however, a difference between the more radical and the more moderate. The Scepticism of the New Academy was altogether a "mitigated scepticism". To this M. Chaignet proceeds in vol. iii., describing the changes introduced into the Academy from its sceptical reaction (with Arcesilas and Carneades) against dogmatism until its return (with Philo of Larissa and Antiochus) to the principles of (more or less eclectic) Platonism. This takes up pp. 1-73. The rest of the volume is devoted to (1) the eclectic Platonists, (2) the eclectic Peripatetics, (3) the eclectic Pythagoreans, (4) Galen, (5) the Jewish school (ending with Philo). It was in the Platonic school, always marked by the Socratic spirit of free inquiry, M. Chaignet contends, that each new movement appropriate to the time first sprang up. As the views of different thinkers were set in opposition to one another, and thought inclined to scepticism, a sceptical tendency developed in the Academy. Then, when this tendency had exhausted itself, and truth began to seem attainable by judicious selection from the positions of different thinkers, it was again the Academy that first gave expression to the new "eclectic" turn of philosophic thought. From about the time of Augustus to the rise of the Alexandrian school the eclectic tendency was everywhere predominant. The system of the Alexandrian school itself, though proceeding from a basis of erudition, is not a form of eclecticicism, but is a powerful and important new construction, the last original effort of the Greek genius. In M. Chaignet's chapters dealing with the Eclectics of all schools the preparatory stages of the new doctrine are well indicated. A struggle is shown to be continually going on between Platonism, Peripateticism, and Stoic naturalism. The Eclectics vainly attempt to fuse all three, sometimes inclining more to one and sometimes to another principle. In the meantime theosophic ideas from the East are finding admission. An intrinsic development of Greek philosophy is also tending in the same direction. This shows itself especially in the theory of the soul. The conflict between naturalistic and spiritualistic views may be seen in the case of an individual observer and thinker like Galen. Galen, in spite of his independent views on some points, and in particular with respect to the relations of soul and organism, is to be classed as a psychological eclectic. Through his occupation with physiology, along with his wide knowledge of philosophical systems, the problem of the nature (material or immaterial) of the soul comes forward in him with special distinctness. The form taken by the problem is, whether the *Pneuma* (still regarded as material) is the soul itself, or only an organ of it; but no definitive solution is arrived at. Above all others, the Jewish thinkers are eclectic; for their whole problem is to reconcile their religious convictions with Greek philosophy. In a special way also they are psychological. "Their philosophy is but a psychology, and that psychology is a theology." What Philo seeks to know is "man, who is

essentially a spirit, in his relations with God, Who is Spirit itself". How this effort found expression in Philo's selection and combination of doctrines from the Greek schools is abundantly shown (iii. 412-484). The relation of his eclectic system to Christian theology, as well as to the new movement of Greek thought, is in conclusion briefly pointed out.

Ueber die Grundlagen der Erkenntnis in den exakten Wissenschaften. Von PAUL DU BOIS-REYMOND. Nach einer hinterlassenen Handschrift. Mit einem Bildnis des Verfassers. Tübingen: H. Laupp, 1890. Pp. vii., 180.

This is a posthumous work edited from a MS. that had not been finally put into shape by the author. The editor, Dr. Guido Hauck, appears to have done his work very well, and, as he says, whatever may be lacking in form—to which the author was accustomed to pay great attention—the thought is perfectly clear. The book may be described as an exhibition of the nature and limitations of mechanical explanation in science, chiefly worked out by direct reference to physical conceptions, but with occasional hints at psychological treatment. There are, the author premises, in all three directions of scientific investigation. The aim of the first is to formulate the empirical laws of phenomena. The aim of the second is a mechanical synthesis, or reconstruction of phenomena from "elementary mechanisms" placed at their base. This is the direction of "exact science". Lastly, there is a "meta-mechanical" direction of thought, which makes the attempt to attain understanding of the elementary mechanisms themselves in their real nature. All that can come of this last direction, the author seems to say, is the conviction that an "extra-phenomenal" real world exists, but that its nature is for ever unknowable. The argument to this effect is placed, however, in a somewhat detached position at the end of the book, and is not the most characteristic result of the author's thought. The really central and characteristic part of the book begins with an examination of the rival hypotheses of continuity or atomic constitution of bodies. Continuity having been rejected as not capable of yielding satisfactory mechanical syntheses, the nature of the atom is discussed. Is it to be taken as an unextended centre of force or as an extended corpuscle? Before this question can be solved the other has to be raised, whether force itself, in ultimate mechanical explanation, is to be viewed as acting "at a distance," or whether, on the contrary, action at a distance can be explained mechanically by means of stresses, strains, and impacts. There follows a very instructive review, first, of the theories that have been imagined in order to bring gravitation under laws of the communication of motion by contact, and then of the mechanical syntheses attempted, successfully or otherwise, for the various physical forces. The result of the whole is that action at a distance remains an irreducible element of every possible mechanical synthesis. Attempts to resolve gravitation into something more general have never yet been successful; and even if they ever were to be, we should still be left with atomic or corpuscular forces which can only be conceived as acting between points, or between bodies not in absolute contact. As a preliminary to further theorising upon the nature of atoms or corpuscles, a mathematical doctrine of "limits" is set forth. The distinction is drawn between (1) a last term of a series of representations that is of the same kind as all the preceding terms, (2) a last term that is of a different kind from the preceding terms but is still representable, and (3) a last term that is not representable at all. An example of the first kind of limit is a regular triangle as the last term

of a series of triangles with continually diminishing irregularity. Of the second kind, an example is a circle as the term of a series of inscribed polygons with continual addition to the number of sides. Examples of the third kind of limit are (a) absolute exactitude of a straight line, and (b) infinity or zero of length as terms of the production or shortening of a line. In the theory of the atom there are limits similar to these last. "Absolute" qualities (*e.g.*, absolute rigidity) are as unrepresentable as perfect mathematical exactitude, and are posited as unattainable last terms of a series. For limits of this kind, whether mathematical or physical, there are two types of theory—the "idealistic" and the "empirical". The "idealistic" theory asserts the actual existence of the limit, in spite of its not being representable. The "empirical" theory explains the mathematical limit as simply a convenient word for stating briefly that by going on with a process of addition or diminution as long as we like we can come as near as we like to the unrepresentable term of the process. In physics, correspondingly, it refuses to admit that any quality really exists in an "absolute" degree, and contents itself with assuming in the atom such an increase or diminution, for example, of rigidity or extension that the assertion of their "absolute" existence or non-existence yields practically true results. There is no doubt that, for the mathematician, the "empirical" theory is quite sufficient, though there will probably always be some mathematical "idealists". In physics also the "empirical" theory, properly worked out, might suffice; but here the general disposition will be to take the "idealistic" view. For the physical "idealist" the ultimate element of matter will not be merely a "corpuscle," but a strict "atom," perfectly unextended. Denuded of all corpuscular character, the atom becomes simply a centre of force, which can now only be force acting at a distance. Force acting at a distance and matter are now identical. To "force" the contrast of "idealism" and "empiricism" is not applicable. Central force, being (as has been already seen) irreducible to anything else, is for science an ultimate fact, or a real "absolute"; and, by the "idealistic" theory of the atom, we are left with it as the only "absolute". The nerve of the difficulty as to "action at a distance" has been in a manner cut by the reduction of every other kind of mechanism to this. For science, all that is necessary is that it should be capable—as it has been found to be—of indefinite application in the synthetic reconstruction of phenomena.

Der moderne Mensch. Versuche über Lebensführung. Von B. CARNEL.
Bonn: Emil Strauss, 1891. Pp. v., 186.

In an earlier volume, noticed in *MIND*, xii. 147, the author developed his general ethical and philosophical views, which here again find incidental expression. The aim of the present series of essays, however, is more directly practical. "The modern man" is regarded from the point of view of the author's ethical ideal, and from this point of view various topics belonging to the conduct of life are considered in the light of experience and with reference to the needs of the time. A subject to which much attention is devoted is modern education. Here the author's position is that the family lays the foundation, the school continues, and the State completes. The object should be to give "an ideal direction to individualism," or, in other words, to form the sense for "a noble happiness". The watchword is not "altruism," regarded as the suppression of "egoism," but rather the incorporation of impersonal ends in the personal character. Such a development of individuality is only possible in a well-ordered State. The ancient and modern conception

of a supreme political order is, therefore, to be upheld against mediæval or communistic ideals that would place a Church above the State or disperse the State into a vague "society". Besides the author's general positions, there is much that is worth attention in his remarks on subjects of the day.

ARTHUR SCHOPENHAUERS *Werke*. Mit Einleitungen, erläuternden Anmerkungen und einer biographisch-historischen Charakteristik Schopenhauers. In Auswahl herausgegeben von Dr. MORITZ BRASCH. Mit dem Portrait Schopenhauers. 2 Bände. Leipzig: Gustav Fock, 1891. Pp. xxxii., 740; 781.

This is a carefully conceived, and in the result a highly successful, attempt to bring together, in handy and cheap form, all that is of permanent value in the manifold writings of Schopenhauer. Dr. Brasch is a thoroughly competent editor, both by reason of his knowledge of the field of philosophy generally, and by the position of independent yet not unsympathetic appreciation which he takes up in regard to the philosopher of Frankfort. The edition gives at full length the smaller works, *Fourfold Root*, *On Will in Nature*, and *The Two Fundamental Problems of Ethic*; ordering them by the side of large extracts from *The World as Will and Idea* and the *Paralipomena u. Parerga* within one comprehensive scheme. The general idea is to make division of Schopenhauer's whole philosophical performance into writings concerned with (1) Doctrine of Knowledge, Metaphysic, and Philosophy of Nature, (2) Æsthetic, Ethic, Philosophy of Religion, and Practical Wisdom; the divisions corresponding with the two volumes of the edition. But the idea is carried out in no mechanical fashion. Thus beginning is made in vol. i. (before the *Fourfold Root*) with some 60 pp. of methodological or related matter extracted from the larger works; and the ordering adopted throughout is excellently devised to bring out the whole compass of Schopenhauer's *positive* thought. A general introduction by the editor on the philosopher's life and works (pp. xi-xxxii.) and shorter special introductions to the main sections, besides occasional footnotes, add much to the value of the two volumes. One must only regret that Dr. Brasch has followed the curiously perverse habit of so many of his learned fellow-countrymen, in not providing an Index at the end.

Die Freiheit des Willens, die Moral und das Übel. Eine philosophische Abhandlung von ANTON GANSER. Graz: Leuschner & Lubensky, 1891. Pp. 48.

"Every creature is in some degree free"; but there is no free-will in the sense of a will separate from intelligence. Freedom is an ideal which is realised more and more as creatures become more conscious of their own being. There is no absolute "evil". All phenomena have a single source, *viz.*, the intelligent will, which is the world-principle. The innumerable Egos that emerge in space and time are representatives of the one Ego, which would exist if they did not. The creation of a multiplicity of individual beings by the unitary world-principle is a logical and moral necessity. Unless creation is shown to be thus necessary, morality has no basis on which it can be known and taught. Schopenhauer's pessimistic principle, for example, can furnish no ground even for pity as a practical virtue. All virtues—compassion among them—are the carrying over to others of our "self-love"; and self-love rests on the feeling of the possibility and justification of a satisfactory existence for

ourselves; from which follows the similar right of others. "Knowledge of the internally justified being of an individual" rests again on knowledge of the world-principle. Only if this is known to be logical and moral can self-love in its turn be justified.

Das Wesen der Elektrizität und des Magnetismus auf Grund eines einheitlichen Substanzbegriffes. Von J. G. Vogt. I. Theil. Die Konstellationen der einheitlichen Substanz als die Träger der physikalischen Kraftäusserung. Mit erklärenden Holzschnitten. Leipzig: Ernst Wiest, 1891. Pp. vi., 472.

In this volume, which prepares the ground for a general theory of Electricity and Magnetism (to be developed in a second Part) there is a "Methodological Introduction" (pp. 1-66) of some philosophical interest. The author, in accordance with his doctrine, set forth in an earlier volume noticed in *MIND*, xii. 634, would express all activities in nature mechanically; and, as he here proceeds to explain, would have all physical "expressions of force" regarded as different "manifestations" of a single "fundamental mode of work" of the "unitary substance". The "unitary absolute world-substance" is to be defined objectively. All real activity is activity of "objective being"; there is in reality no "subjective occurrence"; consciousness is a "passive mirror" in which all that happens in the world reflects itself. "Absolute realism" is the only way out of the dualism of "mind and substance," "subject and object," &c. Assert that the world reflects itself in man, and deny that there is any spiritual principle as "metaphysical essence"—and all is clear. According to this view, there is only one logic, "the logic of real occurrence". To penetrate speculatively into the real process of things we must therefore follow logic, in which that process is mirrored. A condition of the truth of any speculation is "representability" (*Vorstellbarkeit*). By this condition all action at a distance is excluded. The physicist, in the theory of electricity and magnetism as elsewhere, must seek for a "representable" explanation; and this must be sought in some doctrine of the absolute continuity of the actions of a single homogeneous substance.

Inleiding tot de Wijsbegeerte, door Dr. J. P. N. LAND, Hoogleraar te Leiden. 'S-Gravenhage, 1889, Pp. xi., 486. [*Introduction to Philosophy*, by Dr. J. P. N. LAND, Professor of Philosophy at Leyden.]

Prof. Land is recognised as a scholar of singularly varied and thorough equipment, and of wide and vital philosophic culture. His *Hebrew Grammar*, his valuable Syriac publications, and his remarkable *Essay on Arabic Music*, indicate his mastery in a philological and critical department that is rarely cultivated now by philosophical experts. His article in *MIND* on "Philosophy in the Dutch Universities" (Jan., 1878), full of lucid and interesting information as it was, must have turned the attention of many English readers more directly to the philosophical achievements and efforts of his countrymen. The historical survey of the article was complete, and its judgment conscientious even to severity; but its outlook was somewhat discouraging, in view of the new University Regulations of 1876. All the more interesting is it to find evidence of Dr. Land's continued philosophical activity and the proof of living philosophical interest at Leyden in this careful and thoughtful *Introduction to Philosophy*. Written as an introductory text-book, it is well fitted to guide the young student in his effort to master the initial difficulties of philosophical study, and to reach the

latest points of view occupied in the cultivation of philosophical science. As Dutch books are not much read amongst us, it may be allowed to indicate briefly the contents of Prof. Land's *Introduction*. It is divided into six sections—The Task of Philosophy; Experience; Hypothesis; Reasoning; The Way of Philosophy; Philosophy and the Civilised Life. The arrangement explains itself. Under the Task of Philosophy, the distinguished author elucidates in simple and untechnical language the following topics:—What is Philosophy? the striving after wisdom; knowing and understanding; the sciences and philosophy; theory of the world; theory of knowledge; the theory of ideas; division of philosophy; personal and normal philosophy; ancillary philosophy; truth; truth and the time; appearance and probability; philosophy and the personal life. Under the rubric of Experience are discussed the derivation of our ideas; sensible impressions; perceiving; representation and mind; memory and reminiscence; synthesis and analysis; internal perception; experience the work of the mind; the standpoint of the mind; the truth of our knowledge; reality or postulate of the mind; the mind over-against experience. The notion of Hypothesis is treated under the headings:—things and properties; causation and design; mechanism and diathesis (collocation); the finding of hypotheses; latent and apparent ideas; latent thinking and the unregulated movement of thought; the worth of consciousness; the use of hypotheses; metaphysics. The fourth section presents a clear and concise sketch of Formal Logic under the titles:—inference; constancy of inference; logical connexion; abstraction; concepts; truth of concepts; definition; division; categorical judgments; opposition of judgments; the object of the judgment; hypothetical judgments and reasonings; the syllogism; disjunctive judgments; grounds of certainty. By the Way of Philosophy Prof. Land designates the question of Scientific Method, which is explicated under:—end and means; divergence of doctrines; positivist considerations; critical philosophy; induction and deduction; complete induction; generalisation of facts; investigation of causal connexion; establishment of empirical laws; discovery of rational laws; significance of mathematics; determination of probability; attribution of activity; methodic precautions; progress in philosophy. The concluding section exhibits the practical and living interest of Philosophy by expounding its relations to civilised life or culture in eight excellent chapters dealing with the nature and state of civilisation; the religious life; the moral life; right and the state; beauty and art; language; history; and the contemplative and the active life. The critical standpoint and general scope of the work will be apparent. It need hardly be said that it is founded on full knowledge of the latest philosophical literature of Germany, France, and England, and that it is sustained throughout by mature and sober thinking. The author is too much in sympathy with the difficulties of the special philosophical problems of the time, and too completely at one with the practical and cautious habits of thought and the sound sense of his countrymen, to indulge in abstract system-making or mere ingenuities of speculation. But his exposition is really systematised and pregnant throughout, and if his analyses, in view of his special purpose, are not always pressed to their deepest results, nor his criticisms carried on to their highest issues, yet they are always clear and suggestive. The book is admirably fitted to serve its purpose, and cannot fail to promote the revival of philosophical culture and learning in the land of Spinoza, and especially in the haunts of philosophy consecrated for all time by the deepest thoughts of Geulinx and Descartes.

RECEIVED also :—

- E. Westermarck, *The History of Human Marriage*, Lond., Macmillan & Co., pp. xix., 644.
- J. F. Nisbet, *The Insanity of Genius*, Lond., Ward & Downey, pp. xxiv., 340.
- C. Calleja, *General Physiology*, Lond., Kegan Paul, Trench, & Co., pp. x., 391.
- A. Young, *Sociology diagrammatically systematised*, Lond., Houlston & Sons, pp. 174.
- H. Mackenzie, *Evolution illuminating the Bible*, Lond., Simpkin, Marshall, & Co., pp. x., 393.
- T. Tiptaft, *The Greenleeks Papers*, Lond., J. M. Dent., pp. 297.
- J. Jastrow, *The Time-Relations of Mental Phenomena*, New York, N. D. C. Hodges, pp. 60.
- P. Carus, *The Soul of Man*, Chicago, The Open Court Publishing Co., pp. xvi., 458.
- T. P. Bailey, *The Development of Character*, Columbia, S.C., pp. 21.
- E. Ferrière, *Les Erreurs scientifiques de la Bible*, Paris, F. Alcan, pp. 400.
- F. Paulhan, *Le nouveau Mysticisme*, Paris, Alcan, pp. 203.
- F. Levillain, *Hygiène des Gens nerveux*, Paris, Alcan, pp. xi., 308.
- E. de Roberty, *La Philosophie du Siècle*, Paris, Alcan, pp. viii., 235.
- A. Jovacchini, *La Formazione della Vita*, Lanciano, Cav. Rocco Carabba, pp. viii., 359.
- G. Cesca, *Il Fenomenismo dell'Hobbes*, Padova-Verona, Fratelli Drucker, pp. 68.
- W. Paszkowski, *Die Bedeutung der theologischen Vorstellungen für die Ethik*, Berlin, Mayer & Müller, pp. vi., 92.
- G. Frege, *Function und Begriff*, Jena, H. Pohle, pp. 31.
- H. Strasosky, *J. F. Fries als Kritiker der Kantischen Erkenntnistheorie*, Hamburg u. Leipzig, L. Voss, pp. 76.
- V. Cathrein, *Moralphilosophie*, ii., Freiburg i. B., Herder, pp. xiv., 633.

NOTICE will follow.

VII.—FOREIGN PERIODICALS.

THE AMERICAN JOURNAL OF PSYCHOLOGY.—Vol. iii., No. 4. C. P. Bancroft—Automatic Muscular Movements among the Insane. H. Nichols—On the Psychology of Time. [One of the comprehensive historico-critical surveys of special questions to which the *Am. Jour.* is usefully devoting large space. The present study fills some 80 pp. in two parts—(1) Historical, (2) Experimental Investigations.] C. F. Hodge—On the Recovery of Stimulated Ganglion-cells. [Continuation of previous studies on Nerve-fatigue, contributed to the *Am. Jour.* in 1888-9.] Psychological Literature (Nervous System, Psychiatry, Experimental, Miscellaneous). Notes, &c. Vol. iv., No. 1. E. W. Scripture—Arithmetical Prodigies. [Gives account of the recorded cases, and seeks to furnish for the first time an approximately complete bibliography of the subject; attempts also to make psychological analysis of the special power in question and get therefrom some hints for the practical instructor in arithmetic; 59 pp.] H. Nichols—The Psychology of Time. [Follows up the author's historico-critical sketch in previous No. with a detailed account (pp. 53) of original researches of his own made at Clark University; the final outcome of the whole study being thus expressed:—"The general consensus of past and of current opinion is that time-perception must alone be accounted for within some peculiar simultaneous psychic state, and, according to most authors, by some peculiar and disparate form of consciousness, in addition to our stream of ordinary sensations and their representative images. The conclusion which" the author offers "is that the processes of our environment, of our bodily organism and of the sensations and images which correspond thereto, are in themselves, within the limits of the insoluble mystery of the existence of any physical or psychical existence at all, a sufficient explanation of time-psychology, and that time-perception cannot be explained by any single state or disparate sense, but can alone be accounted for as a *process*."] Psychological Literature (H. Donaldson—Cerebral Localisation, and Notes on Models of the Brain. E. C. Sanford—A Laboratory Course in Physiological Psychology. G. S. Hall—Contemporary Psychologists, i. Prof. E. Zeller.)

REVUE PHILOSOPHIQUE.—An. xvi., No. 4. Ch. Richet—Qu'est-ce que la physiologie générale. ["The physiology of elements is general physiology; the physiology of apparatus and organs is special physiology." The great law of general physiology is that the chemical activity of cells is the basis of all their functions.] V. Brochard—La philosophie de Bacon. [An argument for giving Bacon a higher place than is assigned to him by recent memoirs, especially that of M. Barthélemy Saint-Hilaire. Bacon's essential idea is that, in the practice of the experimental method, negative as well as affirmative cases are to be taken account of. He is not to be regarded as a precursor of Locke in the theory of knowledge; and his conception of scientific law is not that of Mill. His view of nature was at bottom the view common to the "mechanists" of his own age. This was the interpretation of his contemporaries. His mechanical doctrine, however, had no influence on science or philosophy. He owes his place in history to that theory of the experimental method which legitimately bears his name.] Pierre Janet—Sur un cas d'aboulie et d'idées fixes (fin). [Impresses further the view that the essential factor in "aboulia" is inability to perform mental

synthesis. In the case discussed, perception (internal and external) is found to be defective precisely in the same way as movement. Except during brief intervals, the patient cannot acquire new memories, and has no imaginative representation of the future. There is doubt—not in any way metaphysical—as to the truth of external perception, which is sometimes altogether suppressed. It is, above all, the novelty of the synthesis to be made that suppresses perception. When the synthesis has once been effected in any manner it can always be repeated automatically. The force of the “fixed ideas” incident to the malady comes from weakness of the new ideas acquired at any particular moment. When these momentarily acquire strength, “fixed ideas” disappear. The weakness does not affect the senses, nor yet the memory as simple reproduction of images. What it affects is the power of founding recollections, of creating habits. It is really a diminution of that power of “adaptation” to events by which we maintain ourselves in relation with a constantly changing environment.] J. Delboeuf—*Pourquoi mourons-nous?* (fin). [The author's account of the origin of things is described as a “biological cosmogony”. The appearance of dead or “stable” matter being explained as a result of the metamorphosis of originally living or “unstable” matter, the question remains, How has that which is destined to this metamorphosis come into the world? This “mystery,” like others, is only soluble by its reduction to simple terms. The general mystery of the origin of life is that of the origin of things. What takes place in the history of things is the gradual concentration of unstable matter into higher and higher organisms—or their really living elements; for higher organisms in part consist of an “envelope” of stable matter. The organisms that remain eternally young, at least in potency, are the “reproductive organisms”. “The ovary is the true depository of the immortal propagating substance.” In “multiplication by division” it has preserved the primitive mode of propagation.] Notes et Discussions (G. Sorel—*Sur la géométrie non-euclidienne*. J. Andrade—*Les bases expérimentales de la géométrie euclidienne*. A. Fouillée—*La philosophie et les concours d'agrégation*). Analyses, &c. Société de Psychologie Physiologique (Ch. Henry—*Sur un olfactomètre*). No. 5. E. de Roberty—*Un point controversé de la théorie de la connaissance*. [The antinomy of the “knowable” and the “unknowable” illustrates the tendency of metaphysics to extend hastily and generalise prematurely certain particular problems borrowed from science. It will resolve itself, for the special sciences, into a series of special questions, sociological, psychological, or physiological.] G. Noël—*Noms et concepts*. [To understand abstraction and generalisation, we must see in perception a phenomenon of activity, not of mere passive receptivity. The “idea” is the residue left in the soul by the perception of the object. If perception is an “act,” the idea is a “habit”. It is this habit that represents the object in a permanent manner. The “name” has for function to make the mental habit that represents the object pass into action. It addresses itself directly to the will. The images that the name evokes proceed from the action as its natural consequences, and the name cannot be understood unless they appear; but it is not from images that it receives its signification. Exclusive attention to certain characters of the object perceived or represented, if it is not the whole of abstraction, is its condition and its basis.] G. Dumas—*L'association des idées dans les passions*. [The association of emotional “tendencies” is only a complex form of the association of ideas, and does not differ in its mechanism from the logical associations of

reasoning. These associations, which may be called "the syllogism of reasoning," prepare and facilitate the other associations that may be called "the syllogism of passion". "Tendencies" in turn react upon ideas and reasonings, and in passion are the dominant element. The complete synthesis is performed under the supreme direction of a "tendency".] Notes et Discussions (Th. Flournoy—*Activité psychique et physiologie générale*. C. Piat—*L'intellect actif et les idées*). Analyses, &c. Rev. des Périod. No. 6. B. Bourdon—*Les résultats des théories contemporaines sur l'association des idées*. [Principally an attempt to reduce all forms of association to "resemblance". "Similitude of time" and "similitude of space" are to be substituted for "contiguity". Thus there are two distinct cases of resemblance—(1) as regards time and space, (2) as regards quality. The expression "association of ideas" the author would replace by "society of phenomena".] J. Payot—*Comment la sensation devient idée*. [Sensation is the irreducible "innate" element of the psychological life, and is an expression of the whole being of the subject. The part it plays in actual psychological life is nevertheless an almost "effaced" part. "Affective consciousness," in which sensation absorbs all the attention, scarcely exists. Between such purely affective consciousness and the reflex action in which mental processes, when they become sufficiently rapid, disappear on the other side, "intellectual consciousness" emerges. It arises out of sensation as the result of a synthesis of mental relations and representative states under which the original element of sensation disappears. This disappearance of sensation beneath "suggested relations" is most conspicuous in expectation, but takes place even in ordinary perception. This and all the higher stages of abstraction and classification attained by the aid of language are essentially a "mechanism of simplification," enabling us to deal readily for practical purposes with the impressions continually crowding in.] Notes et Discussions (J.-P. Durand (de Gros)—*Qu'est-ce que la physiologie générale?*). Analyses, &c. Rev. des Périod.

RIVISTA ITALIANA DI FILOSOFIA.—An. vi. 1, No. 2. L. Ferri—*Della conoscenza sensitiva*. [Principally historical, on perception and its distinction from sensation. The positive result is that perception is to be regarded as an operation of synthesis and the perceptive function as primordial.] S. Ferrari—*Empedocle*. [Introductory to an exposition of the philosophy of Empedocles. The life and the studies already made of the fragments are dealt with.] F. Cicchitti-Suriani—*La pedagogia di Jacopo Stellini*. N. R. d'Alfonso—*Un detto d'Amleto e l'educazione dei sensi*. [Hamlet's saying, "The hand of little employment hath the daintier sense," is discussed psychologically with a view to determining the range within which it is applicable to the senses generally. The conclusion as regards the education of the senses is that the two opposite extremes of no functional exercise and of excessive stimulation are to be avoided.] Bibliografia, &c. (F. H. Collins, *Résumé de la Philosophie de Herbert Spencer*, &c.) No. 3. E. Passamonti—*Le idee pedagogiche di Aristotele*. A. Faggi—*Per la psicologia del dolore*. [Reviews theories of pleasure and pain with special reference to modern pessimism, and concludes that, psychologically, pleasure and pain are equally real, equally positive, and equally irreducible to one another. Pain is the first excitant to physical and psychical development, but it does not continue to be the preliminary to all activity. When a function has once been acquired, it may be exercised voluntarily for the sake of a prospective good without the stimulus of pain. Only to this extent and with this limitation is the contention of the pessimists true that pain is

the indispensable condition of pleasure. For the rest, the position, even taken in its wider sense, has been held as a psychological doctrine without the accompaniment of philosophical pessimism.] A. Gnesotto—*La dottrina del P. Giovenale nelle sue relazioni con quella del P. N. Malebranche*. Bibliografia, &c.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. xv., Heft 2. B. Kerry—Ueber Anschauung und ihre psychische Verarbeitung (Schluss). E. G. Husserl—Der Folgerungs calcul und die Inhaltslogik. M. Dessoir—Experimentelle Pathopsychologie (Schluss). [Discusses 'personality' and 'self-consciousness' in the light of hypnotic experiments. The two conceptions are not to be identified. 'Self-consciousness' consists chiefly in a heightening of the intensity of consciousness, while 'personality' is a special complex of mental phenomena. The personality varies from one period of life to another; and that the strands of which it is composed are heterogeneous is shown by the cases—both spontaneous and artificially-induced—in which they become dissociated.] H. Schmidkunz—Der Hypnotismus in der neuesten "Psychologie". Anzeige. Selbstanzeige, &c.

PHILOSOPHISCHE STUDIEN.—Bd. vi., Heft 4. E. Kraepelin—Zur Kenntniss der psychophysischen Methoden. [A reconsideration, in the light of later experience, of the methods of psychophysical inquiry, devised as these have been upon no fixed principles, but mainly in order to meet the practical exigencies of the specific questions taken in hand.] O. Külpe—Ueber die Gleichzeitigkeit u. Ungleichzeitigkeit von Bewegungen (i.). E. W. Scripture—Vorstellung u. Gefühl. [An experimental demonstration of the fact that in every mental state factors of intellection and of feeling are combined in varying proportions: made out in the course of a larger research noted below.] A. Kirschmann—Ueber die Herstellung monochromatischen Lichtes. J. Schubert—Adam Smith's Moralphilosophie. [A careful and appreciative study of the *Theory of the Moral Sentiments*, occupying some 60 pp.] W. Wundt—Ueber Vergleichung von Tondistanzen. [A heated defence (36 pp.) of a research of one of the author's pupils (C. Lorenz) adversely criticised by Prof. Stumpf in *Zeitsch. f. Psychologie*, &c., i. 6.] Bd. vii., Heft 1. W. Wundt—Was soll uns Kant nicht sein? [A restatement (pp. 49) of the untiring writer's judgment on the present value of Kant's philosophy, partly in relation to a paper of some years ago by Prof. Paulsen, "Was uns Kant sein kann?" but chiefly in relation to criticisms made upon his recent *System der Philosophie*.] E. W. Scripture—Ueber den associativen Verlauf der Vorstellungen. [A very elaborate (pp. 50-146) and remarkable attempt to get together a sufficiently large mass of exact experimental facts bearing on the qualitative flow of ideas, for effective interpretation in terms of law. It is impossible to do more here than draw attention to this research, which is full of the promise of farther development.] O. Külpe—Ueber die Gleichzeitigkeit, &c. (ii.).

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE.—Bd. iv., Heft 3. A. Chiappelli—Nuove ricerche sul naturalismo di Socrate. [Argues that, before arriving at the characteristic positions known to us from Plato and Xenophon, Socrates had passed through a "naturalistic" stage of thought. The representation of him by Aristophanes as a physical speculator is best explicable on this supposition, and traces of his occupation with physical problems are discernible in the *Memorabilia* and the Platonic dialogues. Tradition is in favour of his having been a disciple of Archelaus, and having come into personal relations with

other contemporary "physicists". Be this as it may, there is no doubt that he had diligently studied their writings.] G. Stüpfle—Zur Geschichte der cynischen Secte. [Opposes Dümmler's view that the doctrines placed in the mouth of Socrates by Xenophon are really those of Antisthenes, and goes on to investigate the first origins of the Cynical sect.] A. Gercke—Ursprung der aristotelischen Kategorien. [Seeks to show a Platonic origin for the Aristotelian categories.] P. Tannery—Neuf lettres inédites de Descartes à Mersenne. [Introductory, relating the facts with regard to nine unpublished letters from Descartes to Mersenne, found in the Ashburnham collection. At present two fragments are given of a letter not belonging to the nine.] J. Freudenthal—Beiträge zur Geschichte der englischen Philosophie. [A first contribution to the history of English philosophy before Bacon. The life and writings of Everard Digby are dealt with.] H. Diels—Zwei Funde. [Discusses (1) the newly-discovered treatise of Aristotle on the Athenian constitution, (2) a Latin and Greek inscription giving evidence of the practical interest taken by the Empress Plotina (the mother of Hadrian) in the Epicurean school at Athens.] Jahresbericht (L. Stein, P. Wendland, A. Müller). Neueste Erscheinungen.

PHILOSOPHISCHES JAHRBUCH.—Bd. iv., Heft 2. N. Kaufmann—Das Causalitätsprincip und seine Bedeutung für die Philosophie (Schluss). [According to the Peripatetic solution, the causal principle is an analytical, *a priori* judgment of real, objective import. To this doctrine it is necessary to return if science and philosophy are to be rescued from scepticism.] C. Gutberlet—Der Kampf um die Willensfreiheit (Schluss). [Höfding's arguments against indeterminism are discussed, and Lombroso's position touched upon. In some concluding remarks the limited range of human free-will is conceded, but the certainty of its existence contended for on the ground of its being an immediate declaration of consciousness. To deny it involves the rejection of all intellectual evidence.] J. Wolff—Lotze's Metaphysik (i.). [Exposition, preceded by an appreciative introduction.] J. Thill—Das Fundamentalprincip aller Wissenschaften (i.). [Knowledge, to be scientific in the Aristotelian sense, must be deduced from principles. The first principles of knowledge themselves cannot be deduced, but are immediately evident.] Recensionen und Referate. Zeitschriftenschau. Novitätenschau. Miscellen und Nachrichten.

ZEITSCHRIFT FÜR PSYCHOLOGIE U. PHYSIOLOGIE DER SINNESORGANE.—Bd. ii., Heft 1, 2. H. v. Helmholtz—Versuch einer erweiterten Anwendung des Fechner'schen Gesetzes im Farbensystem. J. Gaule—Was ist unser Nervensystem u. was geht darin vor? E. Raehlmann—Physiologisch-psychologische Studien über die Entwicklung der Gesichtswahrnehmungen bei Kindern u. bei operierten Blindgeborenen. [An important study, mainly of new cases. The author sums up his results in the old formula, 'Nihil est in intellectu quod non prius fuerit in sensu'.] D. Hack-Tuke—Zwangsvorstellungen ohne Wahnideen. K. L. Schaefer—Ein Versuch über die intrakranielle Leitung leisester Töne von Ohr zu Ohr. Besprechung. Litteraturbericht. Heft 3 R. Sommer—Zur Psychologie der Sprache. [Based upon close study of an aphasic patient.] C. S. Cornelius—Zur Theorie des räumlichen Vorstellens mit Rücksicht auf eine Nachbildlokalisation. Litteraturbericht. Heft 4. A. Meinong—Zur Psychologie der Komplexionen u. Relationen. C. Stumpf—Wundt's Antikritik. [Rejoinder (also not without German professorial heat) to Wundt's polemic noted above under *Phil. Studien*.] F. Schumann—Ueber die Unterschiedsempfindlichkeit für kleine Zeitgrößen. Litteraturbericht.

VIII.—NOTES.

PROF. L. STEIN ON LEIBNIZ AND SPINOZA.

In a volume recently published under the above title¹ the editor of the *Archiv für Geschichte der Philosophie* has brought his great erudition, as well as philosophic insight, to bear upon a long and much-debated question, and has succeeded in giving to it at last something like a definitive solution. What did Leibniz, who stood forth in the end as the only possible victor of Spinoza, himself owe to the decried Jewish thinker? The question has the more interest because, while Leibniz through all his later years helped not a little to swell the general chorus of reprobation, his own monadology has yet seemed to many to work out into a pantheism as decided as Spinoza's. Be this as it may, Prof. Stein has seen the need, and also the opportunity, of taking up the question anew, in a fashion not possible before. Gerhardt's collected edition of Leibniz's philosophical works, which has been in progress since 1875,² affords for the first time the means of tracking, with an approach to continuity, the all-inquiring man throughout the devious course of his mental development. Where Gerhardt comes short in completeness, or sometimes correctness of chronological presentation, his untiring labours have yet rendered it comparatively easy for others, like Prof. Stein in the present volume, to supply the deficiency by independent search in the Leibniz archives at Hanover. The new task, then, was to take all the discoverable facts of personal relation between Leibniz and Spinoza, and interpret them in the light of what can now be more exactly made out as to Leibniz's intellectual history earlier and later. It was first essayed by Prof. Stein in a Berlin Academy memoir of 1888, and is now achieved with a circumspection and thoroughness that leave hardly anything to be desired. The result is, that we have not only a settlement, which may be taken as practically final, of the Spinoza-question, but also a more coherent and satisfactory view of the development of Leibniz's monadological thought than had yet been furnished of that difficult problem—for all the labour and ingenuity that have been so long bestowed upon it.

It has now for some time back been generally recognised that Leibniz (b. 1646), though already committed to the philosophic life in his teens, had reached his 50th year before he was known publicly to have worked out a new metaphysical doctrine of his own. The publication was by

¹ *Leibniz u. Spinoza. Ein Beitrag zur Entwicklungsgeschichte der Leibnizischen Philosophie.* Von Prof. Dr. LUDWIG STEIN. Mit neunzehn Ineditis aus dem Nachlass von Leibniz. Berlin: G. Reimer, 1890. Pp. xvii., 362. (See MIND No. 62, p. 298.)

² Completed last year with a supplementary (seventh) volume. This includes, with a large variety of new matter, pieces which were noted in MIND, xiii. 312 as absent from the six volumes to which the edition was originally to be confined. Unfortunately, Gerhardt has not supplied the General Index which would have so greatly enhanced the value of his devoted labours. And, apart from Index, a little more practical sense in the matter of headings to pages, &c., would have made reference to the handsome volumes far easier than, to one's sad experience, it now is.

way of two short memoirs in 1695--the *Specimen Dynamicum*, of more specially scientific import, and the better-known philosophical essay, *Système nouveau de la Nature*. Even then he had not lit upon his distinctive watchword of 'Pre-established Harmony' (in that precise form), to express the universal intercommunion of substances; the phrase occurring to him only some months later in the course of sequent controversy. Nor did he adopt his no less distinctive 'Monad,' to express the individuality of each and every substance, till the following year; borrowing it most probably, as Prof. Stein now gives new ground for supposing, from the younger v. Helmont. But the more important and interesting question is, when he had first attained the essential points of his new doctrine of substance. Now as to this it can, with Prof. Stein, hardly be doubted any more that it was by the year 1686, when he wrote the untitled essay (Gerhardt, iii. 427-63, first published by Grotefend in 1846), which he himself speaks of as "un petit discours de métaphysique" in sending at that time an abstract of it to Arnauld (Gerhardt, ii. 11-3). Much lay here undeveloped, which only gradually dawned on him in the course of the correspondence with Arnauld that followed (till 1690). But the central conception of a system of individualised substances is already there; whereas of this there is no trace in the next-earlier writing, published in 1684, the well-known *Méditations de Cognitione, Veritate et Ideis*. It is surprising that this epistemological tract, in which Leibniz, pursuing his long polemic with Descartes, sought to give much-needed precision to the Cartesian criterion of truth, should ever have been regarded as giving the first indication of his own new doctrine of substance. But, in this default, how are we then to construe the actual course of his mental history up to 1686, the date from which onwards the progressive development of his monadological theory, in all its articulation, can now be accurately traced? Here it is--for the years before 1686--that Prof. Stein succeeds in bringing clearly into view a series of determining factors hardly suspected, or at least not at all definitely enough conceived, before; and these factors all have relation to a demonstrable influence, deep as well as prolonged, from Spinoza.

The main positions are these:--that, after a youth of general philosophical interest and varied aspirations, followed by a time (from 1672) of fruitful mathematical study and discovery, Leibniz was brought, by serious occupation with Descartes towards 1675, to such a state of mind that he was fain to turn for help to Spinoza; that from 1676 his attitude to Spinoza can be described as nothing short of friendly, even after he had made close study of the *Ethica* from the beginning of 1678, revolting in this only from Spinoza's denial of final cause in things; that, in the revulsion, his native concern for teleology was intensified by study of Plato, and before long the definite religious purpose of all his later thought became fixed; that, in particular, he was helped by Plato, towards 1680, to a conception of substance as active force, whereby he could look to reconcile the new mechanical philosophy of the 17th century with final cause in nature; that later on, from about 1684, he came with Aristotle (in more or less Scholastic guise) to see the individual character of his substantialised forces; that thus from 1686, when he wrote his unpublished "*Discours de Métaphysique*" (in order, apparently, to define his philosophical position against the persistent attempts made to win him over to the Catholic faith), he had at last taken his ground, not again to be changed though with much in it still to be developed; finally, that it was only from this time forward that he began to adopt the hostile tone towards Spinoza that, with some rare and significant exceptions, marks the references of all his later years.

It is impossible here to follow out, even in the most general manner, the evidence (some of it quite new) and the acutely reasoned combinations by which Prof. Stein supports these positions; but some more particular account may be taken of the different stages now demonstrable in the relations with Spinoza. Curious it is, to begin with, that in the earliest years Leibniz couples with the name of Hobbes and other modern philosophers the name of the "Cartesian" Spinoza as readily as that of Descartes himself, though Spinoza was then known only by his more or less free exposition of Descartes' *Principia*. We know that Descartes was not seriously taken in hand by Leibniz till some time (probably rather late) in the course of the years, 1672-6, that he spent in Paris; and the delay is remarkable and unexplained, when some years before he had come into as close contact with Descartes' doctrine as he must have been brought by the exposition of Spinoza (1663) or of other Cartesians whom he mentions. But that in Spinoza, at all events, the interest of the eager learner was keen from the first is sufficiently proved by the citations which Prof. Stein makes. It may be doubted, only, whether he does not go too far, at p. 38, when he ascribes to Spinoza's rather than to Hobbes's influence the declaration of Leibniz in 1671, that he regarded geometry as preparing the way for the philosophy of motion or body and this for the science of mind. A more pointed reference to the succession of stages in Hobbes's philosophic thought there could hardly be. And, generally, it may be said that, the more closely one scans all those earlier utterances of Leibniz, including the two academic memoirs on Motion of 1671, the more evidently it appears that, until he became engaged in serious mathematical work from 1672, it was by Hobbes, of all modern thinkers, that he was first and most powerfully affected. Hobbes, as Dr. F. Tönnies has shown (see MIND, xiii. 314), gave him probably the first dim suggestion of the monadic notion, that was to lie undeveloped for so many years; and perhaps also first made him dream that he could not have worthier life-task than to reconcile the new mechanical doctrines with those interests of religion which had been safeguarded by earlier philosophy. It ought, however, to be added that, if not just at the point here remarked on, Prof. Stein is in general most forward to recognise the influence of Hobbes upon Leibniz.

The second stage is of direct personal relation. Even in the earlier years, it is now known, there had been more correspondence between Leibniz and Spinoza than is represented by the single interchange of letters (on a point of optics) given in the *Opp. Posthuma*; but nothing more passed till after 1675, when Leibniz, having now added a first-hand study of Descartes' philosophy to his mathematical achievements, had his interest in Spinoza renewed and heightened by association (at Paris) with Tschirnhausen, who belonged to the inner Spinozistic circle. It is at this stage and what follows on it that Prof. Stein throws most new light. However little one can imagine Leibniz losing hold of his original philosophic ideas and purposes, all vague as they were, it is now certain that, in 1675-6, he was still so far from seeing his own later way that he was, above all, anxious to seek from Spinoza the help which he had failed to obtain from Descartes. This appears first from Tschirnhausen's recommendation, expressed through Schneller to Spinoza (November, 1675), that Leibniz should be taken into confidence; and, when Spinoza would not straightway admit him to sight of the unprinted *Ethica*, we have now evidence that in 1676 Leibniz never rested till he stood face to face with the Hague recluse. That the two met has always been known from an incidental remark of Leibniz in the *Théodicée* (iii. 376); and that their

conversation was not, as there suggested, confined to "anecdotes on the affairs of the time," but extended at least to the Cartesian laws of motion, has also been known, since 1854, from a note, in Leibniz's hand, published by Foucher de Careil. But it is only now, through Prof. Stein's careful research, that we know how serious was their intercourse and how eagerly it was sought by the younger thinker. When Leibniz, in the autumn of 1676, finally left Paris, to take up the official post at Hanover to which he had been appointed some months before, he made his second visit to England and thence took Holland on his way to Germany. But, whereas he was content with a single week on this side of the channel, in Holland he first spent four weeks at Amsterdam in the company of G. H. Schuller, a medical friend of Spinoza, and, having all the time been closely engaged in commenting every scrap of Spinoza's writing which he could get out of Schuller, was then at last (in November) admitted to the presence of the master at the Hague. And here there is proof, set out at length by Prof. Stein with the supporting documents, that their conversations were frequent and intimate; ranging over a large variety of philosophical topics, and so convincing the shy Spinoza of his visitor's earnestness of purpose as well as ability that he produced for him the carefully-guarded MS. of the *Ethica*, and (apparently) allowed a copy to be taken away of the initial definitions, axioms and propositions.

What then was the outcome of their meeting? Before three months had passed Spinoza was no more; and some months later the *Opp. Posthuma* appeared—from the hand (as Prof. Stein first proved the other year) of Schuller, with whom Leibniz at Hanover remained in busy correspondence. Prof. Stein now puts in print all the more important of Schuller's letters to Leibniz (preserved at Hanover). From these, even without Leibniz's letters (except copies of three) which called them forth, it is evident how eagerly interested he was in everything that could throw light on the as yet unpublished doctrine of the *Ethica*. He is seen, too, when the posthumous volume came at last to hand in January, 1678, throwing himself into the study of it with the utmost ardour. Various sets of critical notes which he at once or upon more careful reading wrote down are extant, and have seen the light at different times within the last half century. They betray, in general, as little want of sympathy with some of Spinoza's most characteristic positions as with his method of philosophical demonstration. Only when Spinoza comes to deny intellect and will to God as *natura naturans* and to deride the search for final causes does Leibniz feel bound to mark emphatic dissent. There we see him, evidently, touched to the quick in his innermost and earliest convictions. With his singular openness of mind, especially in those unsettled years, he could give to Tschirnhausen and to Spinoza himself the impression that he was free from religious pre-occupation; and, as now appears from a remarkable letter and epigram discovered by Prof. Stein, he could even sympathise with the tone of Spinoza's stern reproof to the confessional presumption of the whilom pupil, Albert de Burgh. But that he had not lost the aspirations (vague enough) of his youth, towards a philosophical irenicism in the interest of religion, is manifest in his prompt rejection of just those conclusions of Spinoza that were at variance with any religion that the world understood. Though Prof. Stein takes Leibniz's original differences with Descartes to have been purely theoretic, there seems good ground for thinking that, from the time when he first really mastered the Cartesian doctrine, a distrust of its practical consequences helped to stimulate his hostility to its principles. It may well then have been an anxious curiosity to see how far Spinoza

by more rigid method or otherwise, had been able to escape the dreaded consequences that drew him to the Hague. And there finding that the dying man, full like himself of high practical purpose, agreed with him in rejecting Descartes' theory of body and motion, he may for a time have had some real hope that philosophic salvation lay in the way of the mysteriously guarded *Ethica*. The awakening came soon and decisively enough. But that he did not at once—or indeed for some considerable time afterwards—pass out of the mood of sympathetic appreciation is what Prof. Stein has made abundantly clear by all the evidence, new or old, which he here marshals with admirable force. Nor is it countervailed by the fact that in those same years Leibniz could already assume with orthodox correspondents something of his later tone in reference to the hardy Jew. His own formal allowance in 1704 at the beginning of the *Nouveaux Essais*—where Théophile says:—"Vous savez que j'étois allé un peu trop loin autre fois, et que je commençois à pencher du côté des Spinosistes qui ne laissent qu'une puissance infinie à Dieu"—of itself justifies the inference, which is all that Prof. Stein seeks to draw from the facts as now known, that the years 1676-9, in Leibniz's mental history, may well be called "a period friendly to Spinoza".

The influence from Spinoza, of course, did not end with the extinction of Leibniz's hopes. It was, in a sense, never more effective than when the fully-disclosed doctrine of the *Ethica* threw him back upon the thought of antiquity. If Spinoza, at last, stood declared as the ruthless logician who was not afraid to draw out the extremest consequences of Descartes' mechanical principles, was the correction not to be sought outside of the modern movement altogether? Leibniz's boyish acquaintance with the Greek fountainheads of the traditional philosophy had, as regards Plato, been turned to some extent into direct knowledge by 1676, when he translated the two representative dialogues, *Phædo* and *Theætetus*. In manifest reaction then from the thoroughgoing naturalism of Spinoza, he is seen from 1679 almost at a loss to find words that shall express to his correspondents his veneration for the "holy" Plato, especially when maintaining (in the *Phædo*) the supremacy of final causation for any true understanding of nature. Again, to the year 1680 (as Gerhardt, in a special memoir, has shown) is to be referred the short tract entitled by Erdmann *De Vera Methodo Philosophiæ et Theologiæ*, with its identification of the notions of substance and activity; and that Plato's doctrine of ideas gave the suggestion here to the first definite step in the line of development of the monadic conception is rendered very probable by Prof. Stein's careful argument. Still more effectively does he show that the second great step did not begin to be taken till some four years later, and was then taken under the influence of Aristotle, who from that time overshadows Plato in the mind of the eager thinker now pressing onward to a goal of his own that he has begun distinctly to desecrify. But while his Plato had sometimes been little more than the Plato of Augustin, his Aristotle appears to have been mainly the Aristotle of the Schoolmen and foremost among these of Aquinas. The point, in both cases, is of interest, because it shows him, first of all, concerned to get his thinking into a relation of harmony with the chief religious authorities of Christendom; but, once he had satisfied himself of this—himself, rather than Arnauld, to whom first he sought to communicate his ideas in 1686—he had no hesitation in proceeding to develop these farther with all the freedom of conscious power and proved scientific ability. The truth is that, though Leibniz had a singularly open intellect and was always (not only now, but even in later age) looking about for suggestions of thought from without, it was nothing more than suggestions

that such a mind as his could put up with. The working-out, the combining and reconciling,—these were all his own. It can, however, be shown, as here by Prof. Stein, that not only his central conception of individualised substance, but also that his working-principle of continuity, was developed under Scholastic influence. For years still to come—till he adopted (and adapted) the name 'monad'—it was Scholastic terms, like 'entelechieis,' 'formes substantielles,' and the like, that served his purpose in opposing the hierarchy of active and self-realising substances, each in its degree endowed with a true perceptivity, to every form of the modern doctrine of pure mechanism—and specially Spinoza's.

With these remarks, the reader interested in Leibniz—as what student of the history of philosophy cannot but be?—must be sent to Prof. Stein's pages for the detailed proof of the novel positions that have here been little more than barely indicated. He will not only find them argued out with a rare circumspectness, but also within the volume will meet with many other unexpected suggestions of no small interest. To mention but one instance: new documentary evidence is here brought to light which throws back the original conception of the *Théodicée* some fifteen or more years from the time of its publication in 1710, and thereby helps to explain the little coherence of its parts (all rather poorly written), and the want of relation which even the latest of them shows to Leibniz's characteristic philosophical ideas, though penned long after these had reached their full development.

EDITOR.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY (22 Albemarle Street, W.).—Meetings since last record:—Monday, March 16, a paper by Mr. R. J. Kyle, on "The Philosophy of Roger Bacon". April 6, a paper by Mr. D. G. Ritchie, on "Darwin and Hegel". April 20, a paper by Mr. B. Hollander, on "Comte's Analysis of the Human Faculties". May 4, a paper by the Rev. H. Rashdall, on "The Principle of Authority in its relation to Ethics". May 25, Symposium, "Heredity as a Factor in Knowledge"—contributors: Messrs. Perry Coste, D. G. Ritchie, and Bernard Bosanquet. The papers were in every case followed by discussion.

Dr. John Daniel Morell, author of *A Historical and Critical View of the Speculative Philosophy of Europe in the Nineteenth Century* (1847), and of a number of later works, died on 1st April, at the age of 75. In the work mentioned, as also in his *Elements of Psychology* (1853), he was the first to bring forward in England the ideas of Herbart. For his latest philosophical productions, see MIND, iv. 138, ix. 609, x. 402.

SPECIAL NOTICE.

With the October No. of MIND there will be issued a General Index to the whole Sixteen Volumes then to be completed, and the present Editor will retire from the post he has held since the Review was first started. In January next a Second Series of MIND will be begun under the editorship of Mr. G. F. Stout, with the co-operation of Prof. H. Sidgwick, Dr. J. Venn, Dr. J. Ward, and Prof. W. Wallace.